The RUBBER AGE

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The
RUBBER AGE
The Only Twice-a-Month Rubber Publication

Vol. 20 NEW YORK, FEBRUARY 25, 1927 No. 10

GOODYEAR NET PROFIT $8,799,138 FOR YEAR

Net Income was $8,799,138 on Net Sales of $230,161,356, Compared to 1925 Income of $21,005,899 on Net Sales of $205,900,830—Surplus on Dec. 31 was $30,705,014.

The Goodyear Tire and Rubber Company, Akron, Ohio, has reported that its net income in 1926, after interest and dividends on stocks of subsidiary companies, amounted to $8,799,138. After allowing for the regular dividends on the senior securities of the company, this is equivalent to $4.38 per share on the 830,750 shares of common stock outstanding. This computation is made without figuring the payment of any accrued dividends on the preferred stock. The accumulations on Dec. 31 amounted to 25 per cent.

Net sales of the company in 1926 were $230,161,356. Sales in 1925 amounted to $205,999,830 but resulted in much greater net income to the company, the profits in that year reaching $21,005,899. The 1925 profits were equivalent to $15.62 per share on the common stock after dividends on the senior securities had been allowed for.

During 1926 a total of $3,090,388 was paid on account of arrears in dividends on the preferred stock. This payment was equivalent to 4¾ per cent. The company's outstanding bonds and debentures were reduced during the year by $5,591,200 by the operation of sinking funds.

An allowance of $7,494,122 was deducted for depreciation and a deduction for rubber and cotton inventories of $5,250,000 was charged off from the special raw material reserve set up in 1925.

For the first time the report included a fully consolidated balance sheet and a consolidated profit and loss and surplus account for 1926, covering the company and its subsidiaries throughout the world. Total assets are listed as $178,965,325.

Income accounts for the year 1926 and 1925 compare as follows:

	1926	1925
Net sales	$230,161,356	$205,999,830
Costs and charges	215,240,427	169,470,112
Profits before int.	16,438,890	26,284,672
Int. and premiums	6,336,297	3,970,199
Net income	8,799,138	21,005,899
Dividends paid	8,743,444	5,655,156

Details of the balance sheet are shown on page 485 of this issue.

Hon. J. JOYCE BRODERICK, C.M.G.
The complete text of Mr. Broderick's address before the Rubber Exchange banquet is reproduced on pages 497 and 498 of this issue.

RUBBER CONSUMPTION INCREASES IN JANUARY

As has happened regularly for several years, the consumption of rubber in the United States in January showed a distinct gain over December. Total consumption reached 31,518 long tons, an increase of 5,200 over the previous month. Increased manufacture of tires for shipment on spring dating orders is held to be responsible for the increase. This consumption is at a lower rate than in January, 1925 when 32,196 tons were used.

During the last few days the Rubber Association has published its final quarterly report for 1926. On a basis of 100 per cent, this shows that 366,149 long tons of rubber were used in the United States in 1926 as compared with 388,481 long tons consumed in 1925. These figures are slightly less than those secured by adding the monthly figures compiled by the Association.

N. Y. RUBBER EXCHANGE CELEBRATES BIRTHDAY

First Year's Operations Regarded as Highly Successful—Broderick Defends Rubber Restriction Policy—Gov. Moore and A. W. Loasby Also Speak.

The first annual banquet of the Rubber Exchange of New York, which was held on February 15 at the Hotel Roosevelt, New York City, proved to be a most pleasant celebration of the completion of the initial year of trading on the Exchange. About 250 members and guests were present. The principal feature was an emphatic, convincing defence of Great Britain's rubber restriction policy by J. Joyce Broderick, commercial counsellor to the British Embassy in Washington.

Other speakers were A. Harry Moore, Governor of New Jersey, Arthur W. Loasby, president of the Equitable Trust Company of New York, and Robert Keane, the actor. They were introduced by F. R. Henderson, president of the Exchange, who acted as toastmaster. The speeches were broadcast over station WRNY.

Among the guests of the Rubber Exchange were officials of other organizations in the rubber trade and heads of other commodity exchanges. The Rubber Association of America was represented by J. C. Weston, its president, and A. L. Viles, secretary and general manager. J. P. Sullivan, secretary of the Rubber Trade Association of New York, represented his organization. William L. DeBost attended as president of the Chamber of Commerce of the State of New York.

Mr. Henderson's opening remarks revealed the satisfaction with which the first advocates of the Exchange looked back over its first year's business. The first trading on the Exchange was on February 15, 1926 and at the close of business on February 14, 1927, the contracts dealt in numbered 62,704, equalling 156,760 tons of rubber. The total approximate value of such rubber was $170,000,000. The actual deliveries on the Exchange, Mr. Henderson announced, had amounted to 14 per cent of the total transactions. This was taken to prove

First Annual Banquet, Rubber Exchange of New York

AT THE PRESIDENT'S TABLE
(Right to left)

Walter Dutton,
Secretary, Rubber Exchange of N. Y.
Theodore B. Carver,
Secretary, Rubber Exchange Clearing House
P. L. Palmerton,
Editor, The Rubber Age
John P. Sullivan,
Secretary, Rubber Trade Ass'n of N. Y.
Eugene A. Canalizo,
President, New York Cocoa Exchange
Leopold S. Bache,
President, N.Y. Coffee and Sugar Exchange
Robert E. Keane
J. C. Weston,
President, Rubber Ass'n of America
Hon. A. Harry Moore,
Governor, State of New Jersey
F. R. Henderson,
President, Rubber Exchange of N.Y.
Hon. J. Joyce Broderick, C.M.G.,
Commercial Counsellor to the British Embassy
Arthur W. Loasby,
President, Equitable Trust Co. of N.Y.
William L. DeBost,
Pres., Chamber of Commerce, State of N.Y.
Samuel T. Hubbard, Jr.,
President, New York Cotton Exchange
Bertram H. Wunder,
President, New York Produce Exchange
William G. Skelly,
President, Skelly Oil Company
Col. Hugh A. Kelly,
Military Aide to Governor Moore
A. L. Viles,
General Mgr., Rubber Ass'n of America
W. M. Morse,
Associate Editor, India Rubber World

the flexibility of the standard contract and the general workability of the rules governing deliveries.

The Rubber Exchange Clearing House, Mr. Henderson mentioned, had functioned in a most orderly fashion from the very first day and it had been demonstrated that it was properly organized and soundly financed. In the light of the long experience of other commodity exchanges, it had been possible in organizing the Rubber Exchange to avoid some of the things which might have marred its operations during the first year. Proper organization was relied upon to prohibit gambling while promoting honorable speculation which was generally accepted as being for the best interest of those dealing in any commodity.

Exchange Stabilizing Factor

The Rubber Exchange, Mr. Henderson suggested, had been and would continue to be instrumental in preventing wide and rapid price fluctuations. Through broadening the market and providing ready facilities for trading, price movements in either direction could be softened, the speculative market serving as a cushion or a brake. The Exchange also affords, the toastmaster said, facilities for the manufacturer to hedge and thus insure the price of his finished goods.

Governor Moore, the first speaker, saw in the first successful year of the Rubber Exchange a demonstration of the American spirit to overcome obstacles. Adherence to the highest principles of business conduct, he assured his audience, would insure still greater progress for them individually and collectively. The basic character of the rubber industry was commented upon and the prediction made that the usefulness of rubber would be extended still further.

Mr. Broderick's direct approach to the question of rubber restriction, which he might have been expected to avoid, both surprised and pleased the Exchange members and their guests. After pointing out that Britain had for many years failed to exercise monopoly tactics on any of the ten or so raw materials produced chiefly within the Empire, the speaker urged that the sole purpose of rubber restriction was to preserve an important industry and that such interference with the law of supply and demand was justified. While it was possible that the methods adopted to correct the rubber situation were not perfect, the closest attention had been given to the complaints of consumers, particularly in the United States, and a more flexible scheme was the result.

Mr. Broderick's complete address is printed on pages 498 and 499 of this issue of THE RUBBER AGE.

The value of price stability which could be secured through the operations of such organizations as the Rubber Exchange was stressed by Mr. Loasby in his address. All business is a speculation, he suggested, but any machinery which would lessen business risks was desirable. He also suggested that a campaign of publicity be undertaken to inform the public of the true principles on which the Exchange was founded.

Mr. Keane furnished the humor for the evening although he had considerable competition in the witty address of Governor Moore.

The Rubber Exchange banquet committee, which everyone agreed had set a pretty high mark for other committees to shoot at in 1928 and thereafter, consisted of J. C. Cuppia, chairman, R. L. Baird and Fred B. Peterson.

KELLY-SPRINGFIELD LOST $3,439,800 IN LAST YEAR

The Kelly-Springfield Tire Company, New York, reports for the year ended Dec. 31, 1926, a net loss of $3,439,799, after interest, depreciation and amortization of bond discount. This compares with a net income of $1,452,577 in 1925, which is equivalent to $49.24 a share on the $2,950,,000 six per cent cumulative preferred stock, to $21.42 a share on the $5,264,700 eight per cent cumulative preferred stock and to $2.36 a share on the 363,292 common shares outstanding.

As of Dec. 31, 1926, accumulated dividends on the six per cent preferred amounted to 16½ per cent and on the eight per cent preferred to 24 per cent. The balance sheet, as of Dec. 31, 1926. showed current assets of $15,532,081 and current liabilities of $9,927,124, leaving a net working capital of $5,604,957.

CANADIAN ASSOCIATION HOLDS ANNUAL DINNER

The annual banquet of the Rubber Association of Canada was held at the Windsor Hotel, Montreal, on the evening of Friday, February 11. More than 200 members and guests were present. The principal speaker was Senator George P. Graham. Several representatives of the American rubber industry attended the banquet, among them being A. L. Viles, secretary and general manager of the Rubber Association of America. A. B. Hannay is secretary and manager of the Canadian Association.

ANNUAL MEETING OF GOODYEAR ENJOINED

Temporary Order Restrains Goodyear from Holding Annual Meeting Until Federal Court has had Time to Reach Decision in Benedict Case—Other Developments.

Although a mass of evidence has been given during the past two weeks in the various suits over control of the Goodyear Tire & Rubber Co., perhaps the most outstanding development was the issuance of a temporary injunction restraining Goodyear from holding its annual meeting. This and other developments in chronolgical order are briefly as follows:

On Feb. 2 Clarence Dillon, president of Dillon, Read & Co., testified before a notary public in New York City, in accordance with an order from the New York Supreme Court, to the effect that he knew nothing of the existence of a firm representing his company in Ohio. He was followed by James V. Forrestal, a partner, who denied that he had given an order closing the Cleveland office, in this way removing the firm from the jurisdiction of the Ohio courts. The evidence taken will be admitted to the record of Common Pleas Court at Akron in the Tomlinson suit.

Bring Action in New York

A new action by a group of Goodyear stockholders headed by F. C. Tomlinson was filed in Supreme Court in New York on Feb. 10, with charges similar to those in the suit filed by Mr. Tomlinson in Akron Nov. 19.

The status of Mrs. Katherine G. Benedict of New York as a Goodyear stockholder was upheld by Federal Judge Killits on Feb. 8 at Toledo at a hearing on her application for an injunction to restrain F. A. Seiberling and his associates from acting as voting trustees. A few days later F. A. Seiberling, H. B. Manton and Russell L. Robinson took the stand. Mr. Seiberling related the history of Goodyear from the time he founded it in 1898 to 1919. It was indicated by Judge Killits that decision in the case probably would not be reached for some time, but the court issued a temporary restraining order on Feb. 12 to enjoin the annual stockholders meeting of the Goodyear company set for March 28. The order was intended to postpone the meeting until the Court had had time to reach a decision.

On Feb. 8 a motion asking that Clarence Dillon be removed as a Goodyear trustee during the pendency of the Tomlinson suit was filed in Common Pleas Court at Akron.

Suit for an accounting and at least $15,000,000 damages was filed in Common Pleas Court on Feb. 10 against the 15 majority directors of Goodyear by seven Columbus stockholders: Nathan W. Rice, Fred Brundige, Henry W. Butler, Neil Schatzman, Frank G. Larimore, Malcolm G. Dickey and Bertha Wagerly.

Common Pleas Judge Scott D. Kenfield ruled on Feb. 11 that Clarence Dillon had been served legally with a summons to appear before his Court to contest a petition for removal as trustee and must appear unless he desired the case to go by default. This decision in overruling Mr. Dillon's motion to quash service of summons on himself in the Tomlinson suit made unnecessary further prosecution of the suit filed against him by Goodyear stockholders in the New York Supreme Court Feb. 11. The suit was filed so that it could be carried through in event service in the Akron suit was quashed.

C. R. JOHNSON JOINS GODFREY L. CABOT, INC.

C. R. Johnson has joined the Boston staff of Godfrey L. Cabot, Inc. in the capacity of technical director, and is organizing a carbon black research laboratory. He is eminently fitted to carry on this work on account of his unusual combination of both rubber and natural gas experience.

C. R. Johnsor who has joined Godfrey L. Cabot, Inc. and is Organizing a Carbon Black Research Laboratory.

He was connected with the factory organization of Goodyear Tire & Rubber Co. for nine years; in charge of the chemical department for two years and in charge of the development department for one year. This experience has given him great insight into the problems which confront the rubber manufacturer in the plant as well as in the laboratory.

Mr. Johnson was subsequently manager of the development department of the Humble Oil & Refining Co. of Texas and, consequently, has had unusual opportunity to become acquainted with the properties and behavior of natural gas. This combination of experience in the use of both raw material and finished product is most unusual and will prove of great value to the Cabot company's customers.

Godfrey L. Cabot, Inc., have organized their laboratory with two main purposes in mind; the improvement of the present carbon black standards and the development of new types of carbons and natural gas. Studies of the Cabot company's production department have shown the possibility of improvement of yield of carbon black from natural gas by several different methods. The products resulting therefrom show different characteristics from the present standard black. This is of importance in view of the interest being shown in blacks having so-called softer characteristics.

TIRE PRODUCTION AND SALES FELL OFF IN '26

Only 392,000 More Tires were Made in 1926 than in Previous Year, and Sales were Reduced 260,000, while Tube Output Declined 5,996,000 and Sales 9,413,000.

Whereas 392,000 more tires were manufactured by American factories in 1926 than in the previous year, the tire business as a whole, counting both tires and tubes, showed losses in both production and sales. Taking the latest report of the Rubber Association for study, it may be seen by raising the figures to 100 per cent to be more fully representative of the entire industry, that production of all automobile tires for the year was only 61,237,000, compared with 60,845,000 in 1925—a gain of less than one per cent. On the other hand, sales of automobile tires in 1926, totaling 59,002,000, against 59,262,000 in 1925, declined 260,000.

Tube production figures for the year show a wider spread when compared with 1925, as only 76,618,000 tubes were made in 1926, against 82,614,000. This is a decline of 5,996,000. Sales totaled 71,591,000 in 1926, against 81,004,000 in the previous year—a decline of 9,413,000, or over 11 per cent.

December Shows Improvement

The December report of the Rubber Association shows that production of all tires in the month totaled 4,683,000, against 4,324,000 in the previous month. Sales totaled 4,718,000, against 3,733,000 in November, while inventories were 10,456,000 at the end of the month, compared to 10,297,000 on Nov. 30.

Production of tubes aggregated 5,277,000 in December, against 4,852,000 in November. Sales totaled 5,463,000, against 4,045,000 in November, and inventory was 16,200,000 in December, compared to 16,604,000 at the end of November.

In December 44,489 solid and cushion tires were manufactured, against 43,619 in the previous month. Sales of these tires totaled 38,557, against 43,355 in November and inventories were 164,294 at the end of December, against 155,910 on Nov. 30.

The report shows that 37,117,457 pounds of crude rubber were used in tires of all kinds during December and 11,592,667 pounds of cotton fabric. Gasoline consumption for December was 900,018,000 gallons, against 850,122,000 in November.

ORIGINAL EQUIPMENT TIRE PRICES REDUCED

Practically all the large tire manufacturers supplying automobile factories with original equipment have followed the lead of the Firestone Tire & Rubber Co. in reducing prices an average of 7½ per cent. Companies in addition to Firestone who had announced reductions include Goodyear, Goodrich and Miller. There are no prospects that any reduction will be made to dealers.

SEAMLESS EXHIBITS AT PROGRESS EXPOSITION

An exhibit of rubber products which proved of great interest to many thousands was shown by the Seamless Rubber Company, Inc., New Haven, Conn., at the Progress Exposition held in Winchester Hall, New Haven, Jan. 26 to Feb. 5 under the auspices of the New Haven Chamber of Commerce.

During the two weeks the exposition was open over 200,000 people viewed the interesting displays depicting the progress of the industrial life of the city. The exhibit of the Seamless Rubber Company attracted more than usual attention on account of the attractive display of the company's complete line of drug sundries, household and industrial rubber goods, toys, sporting goods, combs and similiar articles. Among the products on display were the regular red-colored hot water bottles and the new blue hot water bottles and fountain syringes recently announced to the drug trade. Bathing caps and rubber scarfs to match, as well as the company's new F.O.S. "industrial" tape, aroused much interest.

Other features of the exhibit were the large half "onion" of Para rubber, samples of plantation crepe and ribbed smoked sheet, hot water bottle mold and core, display of the process for making hard rubber combs by the tin-foil method, several porcelain forms for rubber gloves and a nipple form.

The exhibit was in charge of Gale Shedd, Jr., with P. E. Thomas of the laboratory and E. Zoenig of the production department also in attendance.

GUMMI-ZEITUNG ISSUES ANNIVERSARY NUMBER

Gummi-Zeitung, prominent German rubber trade publication, issued in January a pretentious special number in commemoration both of its 40th anniversary and the Paris Rubber Exhibition. The issue is called "The German Rubber Industry Number" and contains 196 pages, with text in four languages, German, English, French and Spanish. An article on the history of *Gummi-Zeitung* is featured, but the issue contains long articles on the history and business of every German rubber manufacturing company. Most of these are illustrated with half-tone plates which appear to excellent advantage on the coated paper on which the January issue is printed.

CONVERSE TIRE SALES SETTING NEW RECORD

Although the newly-organized Converse Tire and Rubber Company succeeded to the tire business of its parent company, the Converse Rubber Shoe Company, only about six weeks ago, all previous production and sales records of the plant at Malden, Mass., have been broken with the new President and Alpine cord tires which the company introduced.

Hugh Bullock, president and treasurer of the tire company, has been associated with the rubber industry for thirty years.

He was born on a farm near Kilbuck, N. Y. in 1880 and entered the rubber industry at the age of seventeen with the Wales Goodyear Rubber Company, Naugatuck, Conn. In 1898 he joined the Beacon Falls Rubber Shoe Company

Hugh Bullock

working through every department until at 24 he became assistant superintendent. When the Converse Rubber Shoe Company was organized in 1909, Mr. Bullock became a director, and as technical expert supervised the erection of the factory and took personal charge of production. In 1916 he became treasurer of the company, and now remains a director although the major part of his time will be devoted to his new duties in the tire company.

Mr. Bullock's manufacturing and administrative experience covers tires as well as footwear since the Converse Rubber Shoe Company began the manufacture of tires in 1912, separating the department in 1921 when the Converse Tire Company was incorporated. The organization of the Converse Tire and Rubber Company, and the ascendancy of Mr. Bullock to its presidency, backed by the sales experience of William L. Burgess, is assurance that the name "Converse" is to become as large a factor in tires as it is in footwear.

J. E. Clancy

John Everts Clancy, aged 84, who was president of the Mercer Rubber Company, Hamilton Sq., Trenton, N. J., up until his retirement from active business 20 years ago, died Feb. 5 in his apartment at the Waldorf-Astoria, New York City. Mr. Clancy supplied rubber matting for the Waldorf when it was opened 34 years ago and had maintained an apartment at the hotel for 30 years. He had a summer home at Amsterdam, N. Y., and possessed a library of over 7,000 volumes.

Mr. Clancy was a graduate of Union College and a member of Phi Betta Kappa. He was one of the oldest members of the New York Athletic Club.

RUBBER GOODS SALES TOTALED $1,206,022,000

Rubber Association Figures Show Increase Over Previous Year of $63,926,000 in Value of Rubber Goods of All Kinds Shipped in 1926—Less Rubber Used.

The value of goods shipped by the American rubber industry in 1926 showed an increase of $63,926,000 over 1925 despite a sharp drop during the last quarter of 1926, according to figures just compiled by the Rubber Association of America. In 1926, the total sales value of shipments amounted to $1,206,022,000 compared with $1,142,096,000 in 1925.

During the same period however, the volume of crude rubber used decreased 27,223 tons, the actual amounts being 358,415 tons for 1926 and 384,645 tons for 1925. Of this decrease, 16,385 tons were from the tires and tire sundries branch of the rubber industry as shown by 1926 consumption of 306,419 tons and 322,804 tons in 1925.

The 1926 sales value of tires and tire sundries shipments, however, showed an increase of $64,136,000 over 1925, the 1926 total being $866,795,000. This increase, it will be noted, is greater than the total increase for all rubber goods shipped in 1926, indicating a decrease in some other branches of the industry.

Sales, on a whole, dropped very materially in the final quarter of 1926, the largest decrease being recorded in tires and tubes. Other products which showed slight losses were insulated wire, druggists sundries and proofed cloth. Products which showed material increases during the last half of the year were mechanicals and boots and shoes.

Reclaimed production in 1926 showed an increase over the previous year, the last quarter of 1926 showing 6,149 more tons than the corresponding quarter of 1925. Shipments of reclaimed, however, declined slightly with the result that almost 10,000 more tons were on hand at the end of the year than in 1925.

The average number of employees in the last quarter was over 10,000 less than the previous quarter but slightly greater than the average for the quarter ending in June. The number was 151,207 for the fourth quarter compared with 161,922 for the third quarter of the year.

Total Sales Value of Shipments of Manufactured Rubber Products
(,000 omitted)

	4th Quarter	*Total 1926*
TIRES and TIRE SUNDRIES		
Auto and Truck Pneumatics	$140,754	$680,026
Auto and Truck Tubes	23,523	121,891
Motorcycle Tires & Tubes	440	2,083
Bicycle Tires	891	2,860
All other Casings and Tubes	113	425
Solid Tires for Trucks	7,784	36,098
All other Solid Tires	209	898
Sundries & Repair Mat'ls.	4,995	22,514
TOTAL—Tires & Sundries	178,709	866,795
OTHER RUBBER PRODUCTS		
Mechanical Rubber Goods	23,135	98,248
Boots and Shoes	37,888	114,994
Insulated Wire	7,471	35,487
Drug & Surgical Goods	3,049	12,931
Waterproof Cloth, etc.	6,255	22,662
Hard Rubber Goods	3,130	10,355
Heels & Soles	4,982	18,373
Rubber Flooring	1,244	4,241
Miscellaneous	5,076	22,326
TOTAL—Other Rubber Prod.	92,230	339,227
GRAND TOTAL—All Prod.	270,939	1,206,022

PARA-FLUX

(Reg. U. S. Patent Office)
(U. S. Pat. No. 1,611,436)

The Universal Softener

ADAPTABLE

For Tires, Mechanicals, Frictions, Hard Rubber, Reclaims.

UNIFORM

Manufactured to Rigid Laboratory Standards.

IMPROVES

Wear, Tensile, Ageing, Softness, Tack.

ECONOMY

High Quality—Maximum Softening, Moderate Price.

Details on Request

THE C. P. HALL CO.

116 Central Savings & Trust Bldg.
AKRON, OHIO

Manufacturers' Agents

SULPHUR
CLAY
MICA
WHITING

FACTICE
STEARIC ACID
CARBILINE
MAGNESIA

GRASSELLI CHEMICAL ENLARGING FACTORY

Capacity of Cleveland Plant will be Increased 100 per cent and Another Laboratory for Rubber Technical Service will be Added—Many Orders on Books.

Announcement that the Grasselli Chemical Company had begun work on doubling the size of its Cleveland plant and would add another laboratory for technical service on rubber accelerators disclosed that the use of Grasselerator 808 has been increasing rapidly and that orders now on hand for 1927 shipment exceeded by a wide margin those for any period since its introduction to the rubber industry.

Plant of the Grasselli Chemical Company at Cleveland, Ohio

This accelerator was announced in Nov., 1925, having been perfected after a long period of research, application and practical use. The use of it results in a material reduction in time and temperature of curing and makes it possible to use less sulphur and activating ingredients, according to the manufacturers.

Unlike any accelerator heretofore used, Grasselerator 808 is said to fill the important demand for one which is more rapid and active than any of the popular accelerators, and at the same time is claimed to be safer and avoids the disadvantages of ultra or super accelerators. It is easily incorporated in the batch and does not require special preparation or handling, being a transparent, mobile, amber liquid, miscible with all the common rubber solvents. Reduction of the size of the batch and extra precautions with cooling water are said to be unnecessary.

Grasselerator 808 becomes active only above 110 deg. C. (230 deg. F.) and is efficient at 1200 deg. C. (248 deg. F.). Master batches and compounds containing it can be safely stored before vulcanization, the company claims. Cements made with the accelerator will keep indefinitely without gellation. Grasselerator 808 gives maximum results in the presence of zinc oxide. Five parts of zinc oxide by weight (calculated on the rubber) are recommended by the company, although this amount may be reduced if lime or magnesia is used.

The accelerator is practically adapted to universal use. It is a high modulus accelerator, the active ingredient of which is an aldehyde-amine condensation product.

Recent tests disclose that this accelerator has many advantages when used with reclaimed or mineral rubber and in addition gives good ageing qualities to compounds in which pure gum or reclaims are used.

GOODRICH GETS PATENT COVERING V-TYPE BELT

One of the noteworthy developments in mechanical drives of recent years has been the endless belt of the side-driving type, made of vulcanized rubber and fabric. A patent has been granted the B. F. Goodrich Company, Akron, Ohio, covering the construction and method of manufacturing this type of belt.

Having its beginning in automobile fan drives, the application of such belts has been rapidly extended to include various domestic and industrial purposes such as washing and refrigerating machines, loom drives and others too numerous to mention. While engineers have long recognized an inherent superiority in the wedging grip of a V-drive over the flat belt type, it was not so easy to devise a durable belt for this service which could be sold at a reasonable price.

Progress in rubberized fabric side-driving belts has been marked by several distinct steps, the first of which was taken by the B. F. Goodrich Company when in 1912 it brought out an endless, vulcanized V-belt of all cord and rubber construction, later marketed under the name "Silvertown." This belt had an inextensible cabled core and a cover of spirally wound cord strands. It gave excellent service but was somewhat expensive to make. Goodrich also patented in 1918 a flat belt with a continuous-wound cord center and a bias-fabric cover. In 1921 the company brought out a rolled, vulcanized fabric belt with a reinforcing cord core, now being sold under the names "Farranoid" and "Longlife."

Patent No. 1,610,942 was issued to the Goodrich Company December 14, 1926, on an application filed in 1921, covering the construction and method of making these rolled belts, both in the round and V sections.

R. R. OLIN LABORATORIES WILL BE CO-OPERATIVE

R. R. Olin, well-known rubber engineer, has instituted the R. R. Olin Laboratories, 852 Wall Street, Akron, which he plans to develop along co-operative lines to make available to the smaller rubber manufacturing companies, at a reasonable cost, facilities that can at present be afforded only by the larger corporations. The Olin laboratories will be fully equipped to undertake control, testing and experimental work in connection with rubber manufacture.

After graduating from Akron University in 1909, where he majored in chemistry, Mr. Olin spent twelve years with the B. F. Goodrich Company where he engaged in engineering and production work in practically every department. The next four years were spent with the Faultless Rubber Company of Ashland, Ohio, where he was in charge of routine factory control as well as development of goods and process. In connection with the latter duties, Mr. Olin was instrumental in developing new and valuable processes for manufacturing surgical goods.

In 1924-25 Mr. Olin was in England assisting in establishing the new plant of the Reliance Rubber Company and introducing American processes for certain goods. Following his return he has worked in a consulting capacity, particularly with the Faultless Rubber Company and the Swinehart Tire and Rubber Company. Mr. Olin is a member of the American Chemical Society and an associate member of the India Rubber Institute of England.

Open Third Refinery

The Anderson-Prichard Oil Corp., Oklahoma City, Okla., has opened its third refinery at Wichita Falls, Texas, which, like the one at Cyril, Okla., will be a plant for the exclusive refining of technical naphthas for the rubber, paint and varnish trades. The company expects to increase its present specialty naptha tank-wagon service during the coming year to include approximately 45 more cities.

The new addition gives the company a total refining capacity of 10,000 barrels daily, from which tankcars of well-known trade-marked products such as Rubberlene, Stod-Sol and Col-Tex are shipped to all parts of the United States.

Boston Dealers Elect

The Boston Tire Dealers' Association elected the following officers at its last meeting: Max Katz, president; Charles I. Feigen, vice-president; Morris Ellis, treasurer; and Ross Currier, secretary. New directors are Max Laserson, James Field, Al Kressler, David H. Sedersky, Irving L. Field, E. R. Meagher, E. D. Ellison and J. H. Fisk. The directors decided to establish a credit bureau for the dissemination of credit information and a clearing house for the disposal of surplus stocks.

CONVERSE NET PROFIT $273,937 IN 9 MONTHS

Earnings for Nine Months, Equivalent to $9.36 A Share on Common Stock, Indicate Company's Net Sales for Year Ending March 31, May be Over $6,000,000.

The Converse Rubber Shoe Company, Malden, Mass., reports for the nine months ending Dec. 31, 1926 net earnings after depreciation and interest of $273,937. This is equal, after dividends on $2,778,000 of 7 per cent preferred stock, to $9.36 a share on 13,619 no-par common shares outstanding. The stock has been paying $1.00 quarterly. There are also outstanding 2,662 shares of general capital or management stock which are entitled to dividends after payment of $4 a share on the common stock.

Indications point to the fact that sales for the fiscal year ending March 31, 1927, will be over $6,000,000, as sales for the first nine months were $4,293,679, against $3,618,564 for the corresponding period in the previous fiscal year. Total business for the entire 1925-26 fiscal year was $4,960,000.

At the close of 1926 the Converse company had current assets of $3,432,580, against current liabilities of $1,163,912, or a ratio of three to one.

During December the company disposed of its tire business through the sale of its tire subsidiary to a new company—the Converse Tire & Rubber Co. The Converse Rubber Shoe Company leases to the new company that part of its factory which had been formerly devoted to the manufacture of tires. The Converse shoe company also does the milling work for the tire company and sells it the semi-finished rubber. The shoe company owns $732,000 of the Converse Tire & Rubber Co. stock. The old tire subsidiary had been carried on the books at $1,103,667, as of Dec. 31, 1925. Sale of the business enabled the Converse Rubber Shoe Company to liquidate approximately $400,000 of trade acceptances and substantially improved the current financial position of the company.

JANUARY AUTO OUTPUT EXCEEDED DECEMBER

Although it is expected that production of cars and trucks in January exceeded the figures for December, in which month 143,413 passenger cars and 30,002 trucks were manufactured in the United States and Canada, automobile manufacturers are proceeding conservatively.

It is not denied that the spring will see the most intense competition for business in the history of the industry. New sales and service plans are in contemplation and the used car situation is being given considerable thought.

GOODYEAR TIRE & RUBBER CO.

Balance Sheet, Dec. 31, 1926

Assets	1926	1925
Plant	$ 52,808,417	*$51,400,493
Sub. cos.' invest & advances	48,342,687	53,369,063
Invest. in sub. co. securities	....	4,245,974
Other invest.	2,759,245	....
Goodwill, patents, etc.	10,319,275	12,500,000
Bond disc., etc.	2,678,898	3,294,454
Other def. charges	109,532	135,764
Cash	6,495,520	15,750,059
Notes & accts. rec.	9,017,152	14,482,785
Call loans	7,000,000	....
Inventories	39,434,600	38,058,423
Total	$178,965,325	$195,237,022
Liabilities		
Prior pfd. stock	$ 15,000,000	$ 15,000,000
Pfd. stock	6,579,600	65,079,600
Manage. stock	10,000	10,000
†Common stock	1,000,000	1,000,000
Funded debt	53,977,300	59,568,500
Federal taxes, etc.	3,884,289	3,846,950
Spec. raw matl. res.	2,500,000	7,500,000
Accts. payable	5,848,717	9,544,208
Accruals	960,405	....
Surplus	30,705,014	30,649,319
Total	$178,965,325	$193,237,022

**Includes debenture bonds purchased in anticipation of sinking fund requirements. †Represented by 830,734 no par common shares outstanding.*

BRITISH GOODRICH TO ISSUE 250,000 SHARES

It has been announced from the offices of the B. F. Goodrich Company, Akron, that its subsidiary, the British Goodrich Rubber Company, Ltd., is to sell 250,000 ordinary or common shares. This stock will be purchased by the International B. F. Goodrich Corporation, New York. The proceeds will be used to pay the loan of $1,250,000 which the British Goodrich Company borrowed from International B. F. Goodrich.

Late Stock Prices

	Last Price		1927	
	Feb. 17	Feb. 2	High	Low
Ajax	11	11⅞	12¾	9
Firestone	119	117	125	117
do 6% pfd.	104⅛	103	103	101½
do 7% pfd.	99	99	99	98½
Fisk	17⅛	16¾	17½	16
do 1st. pfd.	85	86	86½	81
General	145	145	150	145
do pfd.	102½	102½	102½	101¼
Goodrich	52	48¾	55⅝	42¾
do pfd.	99½	97	99¼	95
Goodyear Com.	30¼	30	30	29½
do pr. pfd.	107	105	107¼	104½
do pfd.	101	105	100	98⅛
Hood	47	—	47	46½
Indiana	29½	31k	30	29½
Intercontinental	12¾	12¾	13⅛	11½
Kelly Springfield	10¼	10⅞	11½	9½
do 1st pfd.	—	—	48	44
do 8% pfd.	44½	35	43	35
Lee	—	7¼	7½	7
Miller	35½	33	35½	32
do pfd.	104	103	104	100
Mohawk	18k	25k	25	24½
do pfd.	54k	65k	65	65
Seiberling	22	22	22	21¾
do pfd.	96	96	96½	96
Star	4k	4k	5	4
U. S. Rubber	62⅝	61	62½	57⅞
do pfd.	107	107	110	107⅝
U. S. Rubber Reclaiming	12k	12	12	12
do pfd.	87k	—	87	87

SALEM RUBBER COMPANY HAD PROSPEROUS YEAR

The factory of the Salem Rubber Company, Salem, Ohio, operated practically at maximum capacity all during 1926 and there is every indication that the year 1927 will be very successful, according to E. A. Tinsman, president.

"For the past year," Mr. Tinsman said, "we have been able to keep operating practically at maximum capacity, and have enjoyed a considerable increase in total volume of business. Our inner tube sale doubled those of 1925. From the standpoint of volume produced and sales, we had a very satisfactory year. Late in the fall we placed on the market another brand of tires and opened up a lot of new accounts. These accounts just getting started did not give us a large volume of business; however, with them for the coming year our volume should be greatly increased. As a matter of fact, we have quite a number of orders on file for delivery the first two or three months of 1927, and there is every indication of the coming year being very successful."

FABRIC MILL REPORTS 1926 LOSS OF $184,582

Inability to compete with mills in the South on tire fabrics caused a loss to the Fairhaven Mills, New Bedford, of $184,582, it was revealed at the recent stockholders' meeting. The book value of the plant was reduced $132,873, and the net quick assets cut $51,708 without allowance for depreciation.

It is proposed to junk 33,000 spindles to avoid payment of taxes on them, as the price offered for the lot is less than the tax bill would be, if assessed on the current basis of $12 a spindle. About 30,000 spindles have already been sold, leaving 90,000, of which about half will be sold and 33,000 junked. This machinery has been taken principally from No. 1 and No. 4 mills, as it is hoped to keep the other two mills in operation.

Some departments at the factory have been idle for over a year.

To Build Branch Plant

According to W. E. Boyd, general manager of the Old Dominion Rubber Company, Elyria, Ohio, manufacturers of rubber toys and novelties, property for a branch factory has been acquired at 506 First St., Portsmouth, Va. The company plans to improve the building on this site and install machinery valued at more than $25,000. It is expected that the new factory will be ready to begin operations in the latter part of January.

GOODYEAR PREPARING BIDS FOR AIRCRAFT

Goodyear-Zeppelin Corp. Working On Bids that Must be in Hands of Navy Dept. by May 16—New Ships to be 780 ft. Long, 156 ft. High and 135 ft. Wide.

The Goodyear-Zeppelin Corp., Akron, subsidiary of the Goodyear Tire & Rubber Co., is preparing a bid on the construction of two super-airships for the U. S. Navy. The contract award will be given the winner of a design competition, and bids must be in the hands of the Navy Department by May 16. Design awards are to be based on a percentage scale worked out by the Department and sent to prospective bidders.

The Goodyear-Zeppelin Corp. will be only one of at least a dozen bidders, but the award will be made to the company which in the opinion of the Navy has the "ability, experience and a staff sufficiently large and experienced to develop details from the skeleton competition designs and to produce the complete airships within reasonable time."

Practically all of the dirigibles now in the United States were built by the Goodyear company, with the notable exception of the Los Angeles, which was constructed by the German Zeppelin company. Dr. Karl Arnstein, formerly associated with the German company, heads a large staff of technical lighter-than-air experts at the Goodyear factory and these men designed the super-dirigible which is the basis of the Navy Department's recommendations.

The ship is to be not more than 780 feet long, with a maximum height of 156 feet and a maximum width of 135 feet. Its "useful load" exclusive of men and equipment is to be 10,000 pounds.

TRANSFER $5,000,000 OF SURPLUS TO U. S. RUBBER

According to a report of the New York News Bureau, the General Rubber Company, plantation subsidiary of the U. S. Rubber Company, has transferred $5,000,000 of its surplus earnings to the parent company through the payment of a cash dividend.

Adding this amount to the income from the parent company's own operations, and after making provisions for inventory readjustments, the U. S. Rubber Company is expected to report for the year 1926 a net income of approximately $9,000,000, after all charges and taxes.

The surplus available for common stock is expected to be at least $4.50 a share, with the possibility that it may run above this figure.

CATALPO!

ANNOUNCE EXAMINATION FOR TECHNOLOGIST

The U. S. Civil Service Commission has announced a competitive examination for junior rubber technologist. Applications must be on file with the Commission in Washington not later than March 12, and the examination will be held about ten days later. The position, which pays an initial salary of $1800 a year, is open in the Bureau of Standards. Competitors will be rated on general chemistry and elementary physics, mathematics up to an including calculus, and practical questions on rubber technology.

AUSTRALIAN GOODYEAR OFFICIALS ARE NAMED

It was recently announced by C. C. Slusser, vice-president of the Goodyear Tire & Rubber Co., that 11 employes had been named officials of the Goodyear factory in Australia now under construction.

W. G. Kither, manager of sales in Australia for several years, has been named managing director of the Australian company. W. R. Urquhart, of the California plant, has been appointed superintendent; R. C. Metzaler, Phoenix, Ariz., general manager; B. M. Moorehead, Akron, mechanical engineer; A. O. Zimmerman, Akron, in charge of development work; A. C. Blank, Akron, assistant in charge of development; E. W. Machan, Akron, personnel director; A. J. Slay, California, purchasing director; E. Bliley, Canada, in charge of Division A; J. Mack, California, in charge of Division B; C. W. McBurney, Akron, tubes and accessories; and N. W. Mears, Akron, assistant in charge of tubes.

Firestone Coal Bins On Fire

Spontaneous combustion in the coal bins of the power plant at the Firestone Tire & Rubber Co. factories in Akron on Feb. 11 was given as the cause of a fire that burned for four hours before it could be extinguished. Damage was estimated at $2,000.

Foresight that Protects

Foresight to insure fulfillment of customers' requirements was shown by our signing Texas contracts months before recent Louisiana industrial gas development started.

CARBON BLACK
GODFREY L. CABOT, INC.
940 Old South Building, Boston

1,489,018 RIMS WERE TESTED IN JANUARY

Fewer Rims Tested Last Month than in Jan., 1926, According to Tire & Rim Assn.—Balloons Make Up 77 per cent of Total, Against 72.8 per cent in Jan., 1926

Fewer rims were tested in January, 1927, than in the corresponding month last year, a report just issued by the Tire & Rim Association of America shows. Of a total of 1,489,018 rims tested and approved during the first month of this year, against 1,980,481 in January, 1926, 77 per cent were of the low pressure variety, whereas the percentage of balloon rims tested last year was only 72.8. The percentage of high pressure rims dropped from 4 in January, 1926, to 3.5 this year, and clincher rims dropped from 19 per cent to 8.1 per cent.

The full report prepared by the Association follows:

Size	JAN., 1927. No.	%	JAN., 1926. No.	%
24x3	2,520	0.2	5,695	0.3
26x3	1,229	0.1	5,966	0.3
28x3	—	—	1,131	0.1
Clincher				
30x3½	121,182	8.1	373,926	18.9
31x4	—	—	1,522	0.1
Balloon				
26x3½	3,456	0.2	—	—
27x3½	6,880	0.5	—	—
28x3½	491,031	33.5	792,343	40.0
26x4	52,634	3.5	—	—
27x4	24,886	1.7	—	—
28x4	144,309	9.7	198,336	10.0
29x4	235,163	15.8	186,713	9.4
30x4	926	0.1	1,729	0.1
27x4½	1,471	0.1	—	—
28x4½	38,095	2.0	—	—
29x4½	17,131	1.2	55,709	2.8
30x4½	80,628	5.4	158,296	8.0
31x4½	1,004	0.1	2,880	0.1
28x5	15	0.0	—	—
29x5	512	0.0	—	—
30x5	11,225	0.8	14,939	0.8
31x5	25,374	1.7	25,627	1.3
33x6	10,174	0.7	6,196	0.3
High Pressure				
30x3½	3,539	0.2	16,570	0.8
32x3½	—	—	2,050	0.1
31x4	—	—	136	0.0
32x4	14,233	1.0	13,657	0.7
33x4	1,110	0.1	—	—
32x4½	29,133	2.0	45,927	2.3
33x4½	395	0.0	—	—
34x4½	3,506	0.2	1,680	0.1
Truck				
30x5	135,958	9.1	46,804	2.4
32x6	15,462	1.0	6,864	0.3
34x7	5,347	0.4	921	0.0
34x5	6,314	0.4	5,567	0.3
36x6	1,543	0.1	7,968	0.4
38x7	505	0.0	212	0.0
40x8	2,128	0.1	1,117	0.1
Totals	1,489,018		1,980,181	

Motorcycle	0.3	0.7
Clinchers	8.1	19.0
Balloons	77.0	72.8
High Pressure	3.5	4.0
20" Truck	10.5	2.7
24" Truck	0.6	0.8

Start Safety Drive

The Goodyear Tire & Rubber Co., Akron, has started what promises to be the most intensive safety campaign ever attempted at the factory.

CATALPO!

GENERAL ASBESTOS & RUBBER TO BUILD

Plans for Additions to North Charleston Plant are Discussed at Annual Meeting —Name M. B. Barkley President and E. H. Jeffords Vice-President.

At the recent annual meeting of the General Asbestos & Rubber Co., North Charleston, S. C., contemplated additions that will make it possible for the company to handle a greater volume of business were discussed. M. F. Judd, vice-president of the Raybestos Company, Bridgeport, Conn., which purchased the factory some time ago, also announced the elevation of M. B. Barkley to the presidency of the General Asbestos company and E. H. Jeffords to the vice-presidency. J. C. Bremer was named secretary.

A statement showed an exceptionally strong financial condition as a result of a satisfactory volume of business done during 1926. Officers of the Raybestos Company expressed appreciation of the good work done by the General company during the year just closed and voiced their belief that the contemplated additions would be an important step forward in the manufacture of rubber packing and brake lining.

The General Asbestos & Rubber Co. is one of several plants controlled by the parent company. Others are located at Peterborough, Canada, Stratford, Conn. and Harefield, Eng. The Raybestos Company enjoys an enviable reputation for its Raybestos "Silver Edge" brake lining and its products embrace almost every conceivable article that can be manufactured from asbestos.

No details of the additions planned were made public at the annual meeting of the General Asbestos & Rubber Co.

Appoint British Agents

The Grasselli Chemical Company, 347 Madison Ave., New York, has announced the appointment of William Somerville's Sons Rubber Co., Ltd., 13 Castle St., Liverpool, England, as direct selling agents in Great Britain for Grasselerator 808. An ample stock of the accelerator will be carried and the Somerville company is prepared to give the fullest co-operation and service in its application.

MOHAWK RUBBER BRINGS OUT NEW CUSHION TIRE

Many advantages are claimed for the new cushion tire recently announced by the Mohawk Rubber Company, Akron, Ohio. The tire is said to be based on a new fundamental in cushion tire construction which is explained by the company as follows: A parallel file of tubular air cavities underlies the deep, resilient, non-tread throughout its circumference. These cavities extend entirely through the tire from side to side and are so spaced that the ends of each cavity extend past the ends of two others Thus, they continuously interpose their entire cushioning ability between the load and road at all times.

It is said that the new tire has been proved to possess five unique advantages under competitive tests, including a saving in fuel, continuous cushioning, slow tread wear, elimination of disastrous tread splits and easy starting. Inasmuch as the tire was perfected after years of experimenting, it is claimed that the new tire provides a margin of vibrationless cushioning so closely approaching pneumatic tire efficiency as to permit the extended operation of trucks over roads and at speeds previously considered hazardous for any but pneumatic tire equipment.

Cross Section of New Mohawk Cushion Tire

Mohawk Cushion Tires are permanently vulcanized to steel rims and are interchangeable with 30 x 3½ pneumatics. Additional sizes will be placed on the market in the near future.

RUBBER COMPANIES TO EXHIBIT AT GOLF SHOW

A number of rubber companies manufacturing golf balls and golfers' accessories are expected to exhibit at the Second International Golf Show and Country Club Exposition to be held at the Hotel Sherman, Chicago, March 21 to 26. The annual convention of the National Association of Greenkeepers will be held on dates concurrent with the show.

The amazing expansion of golf as an outlet for rubber products is strikingly shown in a current survey which reveals 1,000 new golf clubhouses in course of construction or already opened in 1926 This brings the total number of golf and country clubs up to 5,000.

The Goodyear Tire & Rubber Co., Akron, will be the largest exhibitor of golf balls, it has been announced, but a complete list of displays was not available when this was written.

In conjunction with the show, a golf fashion revue will be staged, with 50 Chicago debutantes as the models.

Lee Appoints Ad Agents

The Lee Tire & Rubber Co., Conshohocken, Pa., has appointed Williams & Cunnyngham, Inc., as its advertising agency. Plans for 1927 advertising, which will feature the phrase, "Lee of Conshohocken", include newspapers, magazines, business papers, direct-mail and outdoor advertising.

AKRON STILL LEADS ALL OTHER CENTERS

Plants There Made 51 per cent of All Rubber Goods in Country in 1926, with Sales of 17 Companies Aggregating $569,721,717, Survey Shows.

Rubber factories located in Akron did a business of $569,721,717 in the fiscal year ended Oct. 31, 1926, according to figures just released by the Akron Chamber of Commerce. This business was nearly $100,000,000 larger than in the preceding year, when total sales were $473,558,909, and more than $200,000,000 over 1924, when sales aggregated $364,552,564.

Payroll disbursements by Akron rubber companies in the year were $86,559,108, compared to $82,111,477 in 1925 and $70,569,108 in 1924. Although the payrolls increased, the total number of employes decreased by approximately 2,500, as 41,765 men and 9,453 women were employed in 1926, against 43,410 men and 10,159 women in 1925. The reduction in the number of hands is a good indication of the increasing efficiency of labor and the trend toward greater machine production.

Combined capitalization of 17 rubber companies in 1926 was reported as $368,579,670, compared with $330,509,778 in the previous year and $284,478,250 in 1924.

According to figures of the Department of Commerce cited by the Akron Chamber, production of the Akron factories totaled a little more than 51 per cent of all the rubber goods manufactured in the United States. The value of Akron rubber products was placed at $480,000,000, and that of all other centers, $445,000,000. Out of a total of $560,000,000 spent for raw materials, Akron factories paid out $282,000,000 in 1926, or 50.4 per cent of the aggregate amount.

Companies in Akron manufacturing rubber factory equipment sold products valued at $3,614,471 in 1926, against $3,519,866 in the preceding year. Payrolls of these companies last year totaled $1,472,165, against $1,666,000 in 1925.

Akron is listed by the Chamber of Commerce as a city of 209,512 inhabitants, with an area of 25.3 square miles. It has 205 miles of paved streets, 390 miles of sewers, a tax duplicate of $320,763,000, a tax rate of 24.80 and a death rate per thousand of 9.8. Akron stands third in a list of Ohio manufacturing centers, being surpassed only by Cleveland and Cincinnati.

Footwear Production High

The Watertown, Mass., factory of the Hood Rubber Company is said to be engaged at approximately 66 per cent of capacity in footwear departments. This production is said to represent about 20 per cent of the total footwear output in the United States. The reduction in prices of 14½ per cent in the 1927 winter lines is expected to stimulate advance orders.

Personal Items

C. D. Townsend, manager of the mechanical sales department of the Syracuse branch of the U. S. Rubber Company since 1922, has been appointed branch manager in charge of all sales in the central and northern New York territory. He succeeds Paul Heenan who was killed during January in an automobile accident. Mr. Townsend has been with the U. S. Rubber Company since 1906.

• • •

A. C. Fisher has joined the India Tire & Rubber Co., Akron, as manager of accessories and repair materials after many years of service in the same kind of work with the Goodyear Tire & Rubber Co., where he was manager of accessories and tire chain sales.

• • •

C. B. Whittelsey, president of the Hartford Rubber Works Company, Hartford, Conn., was re-elected treasurer of the Society of Automotive Engineers at the recent annual dinner and meeting.

• • •

C. W. Seiberling, of the Seiberling Rubber Company, Barberton, Ohio, was elected president of the Akron National Balloon Race Association, recently incorporated to foster the National Balloon Race to be held at Stow Flying Field, May 29.

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J. F. Jones, sales manager of the Mohawk Rubber Company, recently returned to Akron after a ten-day business trip through the eastern states, during which successful salesmen's conferences were held by the Boston and New York branches.

• • •

P. H. Goodall, assistant sales manager of the Mohawk Rubber Company, was optimistic about the outlook in mid-eastern territory, following his return to Akron from a visit to dealers in Warren, Buffalo, Jamestown, Rochester and Pittsburgh.

• • •

Dr. Wolfgant Klemperer, research engineer for the Goodyear-Zeppelin Corporation, Akron, lectured Feb. 10 at the Franklin Institute of Pennsylvania, Philadelphia, on "Soaring Flight."

• • •

Arthur S. Callum, formerly associated with the Fisk Rubber Company at Milwaukee and more recently treasurer of the Tucker Rubber Corporation, has joined the Rubber Service Department of the Grasselli Chemical Company, New York, as Eastern sales representative.

• • •

B. J. Lemmon, who has been associated with the U. S. Rubber Company in the general research laboratories, sales, technical service and tire manufacturing divisions, has been promoted to field engineer in the tire development department, with headquarters at Detroit.

• • •

Harvey S. Firestone and Mrs. Firestone were in Washington on Feb. 8 to attend a dinner given in honor of President Coolidge by Secretary of the Interior Hubert D. Work. They left the next day to go to the New Jersey home of Thomas A. Edison to be present at his birthday celebration.

• • •

S. A. Rockefeller, formerly employed by the Miller Rubber Company for many years and also with B. F. Goodrich Company at one time, has been appointed special representative of the Star Rubber Company, Akron. He will cover New York and Long Island territory and will make his headquarters in New York.

• • •

R. R. Robinson has been appointed special representative in Nebraska for the American Tire & Rubber Co., Akron.

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CATALPO!

BUYS RIGHTS TO MAKE RUBBER SHOCK DEVICE

American Chain Company Acquires Rubber Shock Insulator Company, with License to Make the Device for Passenger Cars, from International Motor Company.

As a result of lengthy negotiations, the American Chain Company, Bridgeport, Conn., has acquired complete control of the Rubber Shock Insulator Company which owns licenses to manufacture rubber shock insulators for passenger cars. William T. Morris, vice-president and general manager of the American Chain Company, did not disclose the terms of the purchase, but confirmed the report.

The Rubber Shock Insulator Company, a subsidiary of the International Motor Company, New York, was the originator and patentee of the device and owned the licenses to manufacture it for passenger cars, but the International Motor Company retained the rights to manufacture it for trucks and busses and did not dispose of these rights when the Rubber Shock Insulator Company was sold. The device was manufactured for the Rubber Shock Insulator Company under contracts with the Firestone Tire & Rubber Co. and the B. F. Goodrich Co., and although the announcement made no mention of this fact, it is understood that these rubber companies will continue to make it for the American Chain Company.

Headed by A. F. Masury, chief engineer of Mack Trucks, Inc., as president, the Rubber Shock Insulator Company had confined its activities to the passenger car field. The shock absorbing device was originally developed for use on trucks and has been standard equipment on Mack trucks for some time. Its adaptation to passenger cars was begun when the Yellow Truck & Coach Co. secured a license to use it on Yellow taxicabs. Since that time rubber shock insulators have been made standard equipment on several lines of automobiles, including the Chrysler, Little Marmon and Kissel.

The device consists of a block of resilient rubber encased under pressure in a metal housing and used instead of the conventional spring shackle. It has become a familiar sight on the taxicabs running in New York and Chicago.

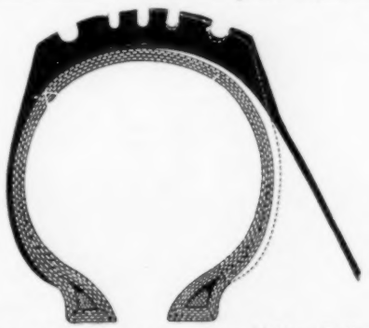
TO SUPPLY OXYGEN TO AKRON RUBBER PLANTS

The National Oxygen Company, with general offices at 29 S. La Salle St., Chicago, is now completing a plant on a plot 70 by 125 feet in Akron, Ohio, to supply large Akron manufacturers with oxygen, hydrogen and other gases. The plant, which will be in operation by March 1, will be equipped with the most modern oxygen generating machinery known to science. The entire equipment was manufactured in Frankfurt, Germany. The plant will produce 1,000,000 cubic feet of oxygen a month.

An electrolytic apparatus supplying 1,500,000 cubic feet of hydrogen a month is also being installed. The company will also generate acetylene, casing head gases and will handle all classes of apparatus pertaining to the business. A large supply of new cylinders will be kept in stock to supply rubber factories with fresh gas.

MILLER CHANGES TREAD ON ITS BALLOON TIRES

The Miller Rubber Company, Akron, following the announcement of changes in the tread of Goodyear balloon tires, has also announced a new balloon tire which consists of a one piece tread and



Cross Section of the New Miller Balloon Tire, Showing Unit Construction of Tread and Sidewall.

sidewall. The tread is flat in shape and gives approximately 38 per cent greater traction than round tread types, it is claimed. The tread and sidewall are built as a unit, the sidewall extending over the entire surface to the bead. The usual seam where the tread joins the sidewall has been eliminated, thereby doing away with the possibility of cracking and other sidewall ailments.

The Miller company has been experimenting with the new construction for months, and has had the tires in use all over the United States for six months, where the hardest tests were given them.

Regardless of the load, the broad road-shaped contact surface is said to allow the tread to wear evenly. For this reason no uneven, spotty wear will occur. The whole tire flexes as a unit, it is pointed out, with less wear on tread, sidewalls and bead.

According to William F. Pfeiffer, general manager of the Miller company, over $2,000,000 was expended in developing the new tire.

Cahill Quits General

William J. Cahill, assistant secretary and assistant treasurer for the General Tire & Rubber Co., Akron, recently tendered his resignation to become the Philadelphia distributor for General tires.

CATALPO!

PRODUCTION IN AKRON 115,000 TIRES A DAY

Although Figures from All Plants are Not Available, Consumption of Electric Current Indicates Factories are Operating at from 80 to 90 per cent Capacity.

Estimates based partly on figures given out from the factories and partly on the power consumption curve of the Northern Ohio Power & Light Co., which supplies all of the factories with the exception of two, place tire production in Akron at between 80 and 90 per cent of capacity for the third week in February. This means a daily production of approximately 115,000 tires.

According to E. G. Mangold of the power production department of the electric company, consumption of current by rubber factories in March is expected to equal or exceed that for any month in 1926 except October.

Officials of the large rubber companies in Akron seem to agree that business has shown a decided improvement since the middle of January. Original equipment business, which dropped off sharply in December and January, has again begun to improve. Tire companies report a substantial increase in orders from Detroit and other automotive centers.

No Dealer Reductions in Prospect

Executives are confident that no reduction in tire prices is in prospect and that the motoring public will soon realize the fact. Yet, it was said to be obvious that higher profits must come from savings effected within the factories rather than from the public, unless prices are radically advanced, and there are no prospects of such a step in sight. It has been pointed out that rubber companies should be able to make a better showing in 1927, because crude rubber prices are fairly low and comparatively stable, as are cotton and tire fabric prices. Much of the high-priced crude rubber purchased in 1926 has already been worked off.

A recent survey showed that dealer stocks throughout the country are lower than they were at this time in 1926, and as a result, most manufacturing executives look for a healthy business to develop as soon as the touring season opens.

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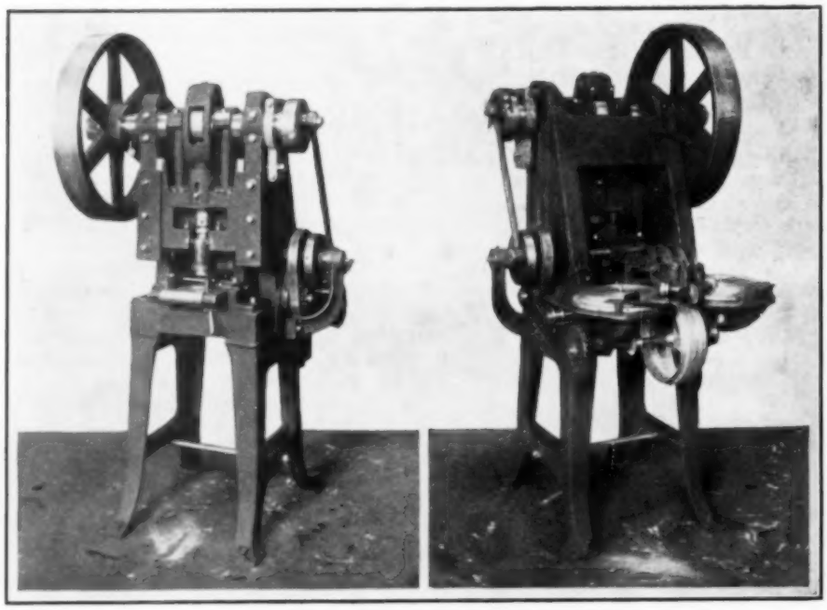
New Equipment for Rubber Factories

AUTOMATIC RUBBER HEEL CUTTING MACHINE



Automatic Rubber Heel Dieing Press

Illustration at Left Shows Front of Machine, the Side which Faces the Mixing Rolls. The Other View Shows the Rear where the Heels are Separated from the Scrap.

The Automatic Machine Company of Bridgeport, Connecticut, has developed an efficient automatic machine for dieing out rubber heel blanks direct from a strip of rubber which is taken off directly from the mixing mills.

The regulation cutting dies are so made that a change from one size heel to another can be made in one to two minutes. A feed motion for any size is provided, and adjustments are practically instantaneous. An automatic stripping mechanism on the back of the machine separates the heels from the scrap, the heels going in one direction and the scrap in another.

Usually this machine is installed facing the mixing rolls, about two feet away. Both mill and machine are driven by independent variable speed motors. A continuous strip of rubber about 4 in. or 5 in. wide and of suitable thickness is cut from the rolls and fed directly into the cutting machine. By the variable speed motors on both cutting machine and mixing rolls, a continuous flow of cut heels is produced at speeds from 100 to 200 single heels per minute. Where the cutting dies are double, 200 to 400 heels per minute are produced.

The separating device at the rear of machine drops the heel blanks into a cooling bath and the scrap is returned immediately to the mixing mill before cooling. The machine is exceptionally well designed for this work and is strongly built to withstand severe and continuous service. The machine weighs approximately 2600 pounds and occupies a floor space of 40 in. wide and 48 in. deep.

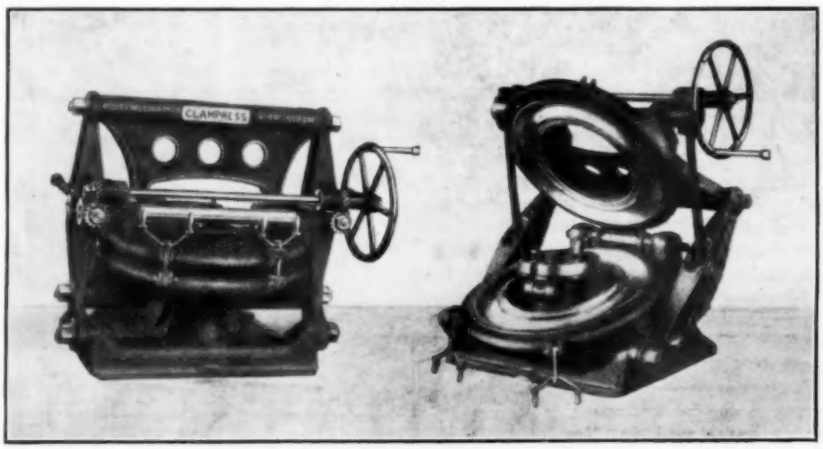
BRITISH TIRE VULCANIZER

Rogers, Wilson & Co., Birmingham, England, have placed on the market in Great Britain a new individual tire vulcanizing press called "Clampress," invented by Colin Macbeth, who is well known to rubber executives in this country. It is of the horizontal type.

Means for both opening and closing the press are combined and geared to make operation easy. There are no balance weights and no safety locking device is required. The press takes up but a small amount of floor space and only one man is required to operate it. The tire is supported at the most convenient height for the operator, and no hold-down bolts are required, as the press sits on the floor. Steam chests and all parts subjected to pressure are made of steel, and toggle linkage takes care of most of the pressure in the air bag. Two anti-spring bolts at the front are the only bolts required.

The tire is supported on a platen to which are attached hooks controlled automatically for separating the tire from the mold. The hand wheel, together with the toggle linkage and jack screw provide enormous leverage for breaking the tire away from the mold.

The Clampress is being made in all sizes from motorcycle up to and including giant pneumatics.



"Clampress" Individual Tire Vulcanizer

To Market New Tester

The Motor Meter Company, Long Island City, N. Y., has announced the addition of a new tire tester to its line of automobile accessories. The tester will be made in the plant of the National Gauge & Equipment Co., La Crosse, Wis., which the Motor Meter Company acquired during 1926.

Stardant Opens Plant

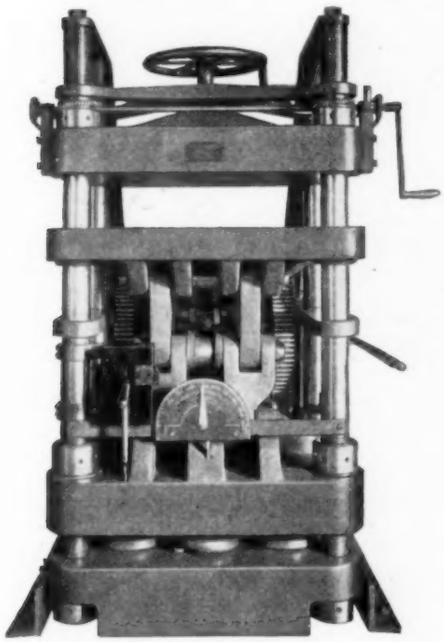
The Stardant Rubber Company recently began operations in its new factory on Springfield Road, Kenmore, Ohio, which replaces the structure on Kenmore Blvd. destroyed by fire. The addition of a new line of molded specialties to its present line of rubber aprons and household goods is being considered.

New Factory Equipment

TERKELSEN PERFECTS NEW SPRING PRESS

The Terkelsen Machine Company, Boston, Mass., has placed on the market a new type of mechanical spring press which is said to be adapted particularly to the molding of mechanical rubber goods, celluloid, casein, fibre and all other plastics.

A feature of the press is that it is entirely mechanical, thus eliminating the necessity of hydraulics and expensive accessories. The perfection of the press is claimed to be a distinct step forward in the art of molding, making it possible for the rubber manufacturer to obtain greater production at a smaller cost and with less spoilage. The maintenance cost of the press is practically negligible, as compared with that of keeping hydraulic equipment in condition, for the press is virtually a machine tool and requires only proper lubrication.



Perfected Terkelsen Press
This New Spring Press is Entirely Mechanical in Operation Thus Doing Away with Necessity of Hydraulics.

Operated by an individual motor, it has compound gearing, cam and toggle and specially constructed springs which retain the pressure while curing, the motor being shut off during this interval. Such an arrangement is claimed to be ideal from the standpoint of low operating costs.

The Terkelsen press is unusually easy to operate, the manufacturers point out. A friction clutch is thrown into engagement by a lever at the side of the press that causes it to close. The press is automatically stopped at the top and at the bottom of the stroke. The curing period may be regulated mechanically if desired. In other words, each press may be equipped with a timing device that will control steam or water at desired intervals and automatically cause the press to open when the curing time has expired. This feature enables one man to operate more than one unit and at the same time eliminates the human element in the curing process.

Each press is a complete molding unit in itself. Valuable space that otherwise would be occupied by pumps, etc., can be thus utilized to better advantage. Presses can be obtained for any tonnage, number of plates, size of platens and stroke. The Terkelsen Machine Company has a new bulletin covering this equipment which they will be glad to send to manufacturers on request.

Carlisle Tire Formed

The Carlisle Tire & Rubber Co. of Illinois, 160 N. La Salle St., Chicago, Ill., was recently incorporated to distribute rubber goods of various kinds. Authorized capital is $50,000. Incorporators are Charles S. Moomy, M. V. Harrison, Edward G. Jacobs. Sommers and Sommers, 160 N. La Salle St., are attorneys for the corporation.

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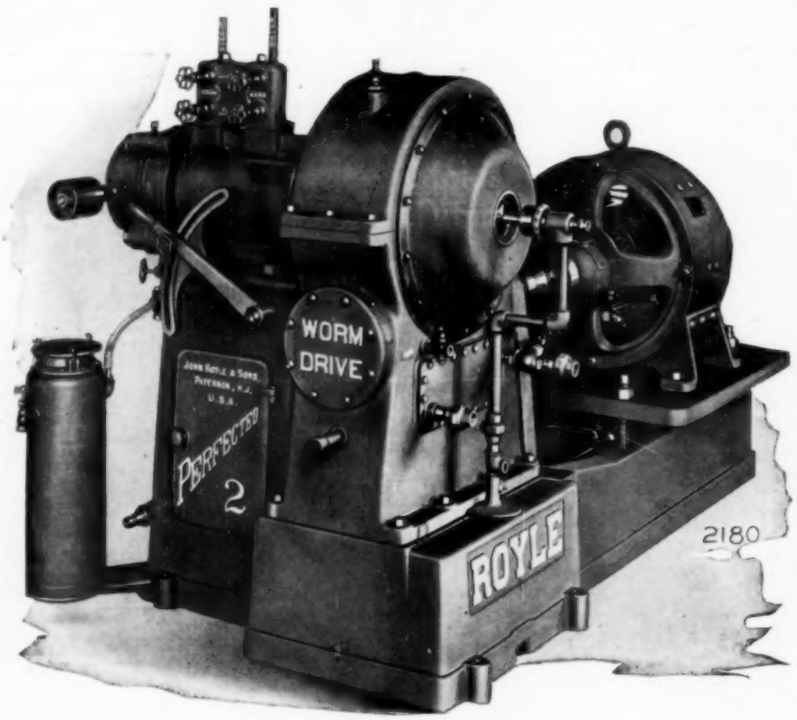

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Vol. 20 FEBRUARY 25, 1927 No. 10

Wages in the Rubber Industry

THE FLURRY of labor agitation in the Akron rubber district appears to have died down and it is believed that the discontent which is still smouldering will die down altogether. Several years ago an Eastern economist commented on the absence of labor trouble in the rubber industry. The point was made that rubber company executives had almost invariably treated labor fairly. The welfare projects of the big companies in the Akron district are not surpassed in vision or effectiveness by any in the country.

The real test of satisfied labor is of course direct compensation in the pay envelope. Hence it is satisfying to study the wage movement figures of the National Industrial Conference Board. In a recent bulletin the average earnings in the rubber industry are reported upon in comparison with twenty-four other manufacturing industries. Reports from about eighteen hundred establishments were used in developing the table.

In November the average hourly earnings of all sorts of wage earners in the rubber industry were $.664. The average for the twenty-four industries was $.568. In other words, rubber workers were receiving 17 per cent greater wages than the general average of factory labor. In only two industries were the average hourly earnings higher than in the rubber factories—one was printing and the other was automobile manufacture. In the latter the average hourly wage was only one-half cent greater than the average in the rubber industry.

In the matter of average weekly earnings, the rubber industry also surpasses the average of the twenty-four industries although by not so great a margin. This is due to the greater number of hours demanded of the workers in some fields, resulting in a larger total wage. In the rubber industry in November, the average number of hours of labor performed by each worker was 43.8. In the agricultural implements industry, for instance, the average number of hours worked was 48.4, but the average weekly return was only nineteen cents greater than in the rubber industry.

According to the Board's survey, in the month of October the average weekly earnings in the rubber industry were as follows: Male labor, skilled, $33.25; male labor, unskilled, $28.69; and female labor, $19.83. All of these weekly wages are above the average for the twenty-four industries considered.

A potent reason for the southward trend of the tire fabric industry appears in the wage figures for the cotton manufacturing industry of the north and south. Male, unskilled labor in the northern cotton mills earns an average of $20.05 per week; the comparable figure for the southern mills is $12.70. The difference in the case of male, skilled labor is not so great but in that class the north still pays 30 per cent more than the south. When the industrial development of the south is more complete, this great differential in wages will no doubt disappear in large part, but before that time comes it is probable that many other industries now centered in the north will have found it worth-while to move into the warmer climate. The advantages of rubber factories in the south would be an interesting subject to consider, particularly in view of the ever-expanding market for tires and other rubber manufactures there.

The Triumph of the Galosh

IN 1926, according to statistics compiled by the Rubber Association of America, the wholesale value of the products of the rubber industry of the United States was sixty-four million dollars greater than in 1925. It is appropriate to consider that a fair share of this gain is due to the new popularity of galoshes.

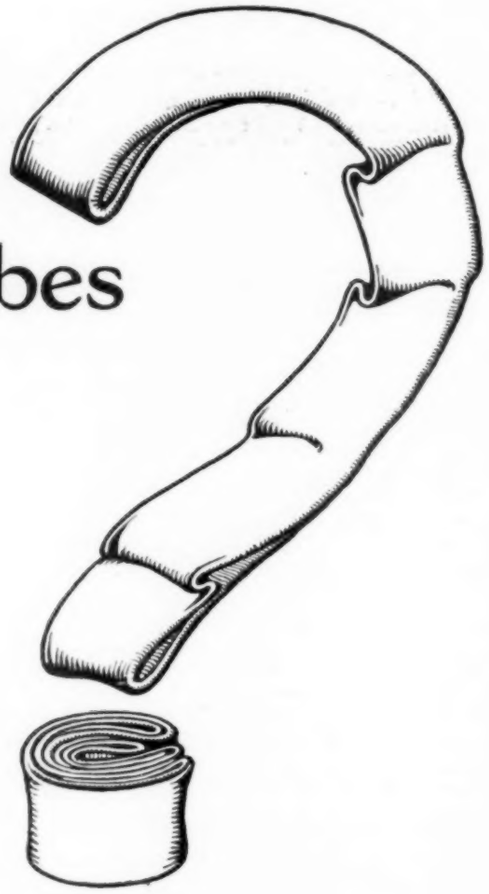
The evidence of the advance of this lowly article of apparel is abundant at every street crossing. There was a time when the galosh went only to church and school, perhaps to lectures. Fashion shunned it in spite of the protection it offered. Only courageous souls accepted the galosh unless it was clear that an epidemic of influenza or pneumonia was just around the corner.

Then came the triumphant reversal, born not of an accident but of the astuteness of the galosh manufacturers. In brief, the galosh was glorified, it became colorful, decorated—and desired. Immediately it became the pet of youthful fashion and the entire feminine world began to find in it the protection which had always been needed but which had formerly demanded the sacrifice of chic appearance. The rubber footwear manufacturers have not been slow to follow up their new advantage. They are capitalizing on a human trait in a way that may point the path to success for other sections of the industry.

Import Duties

THE RECENTLY-PUBLISHED prediction that the automotive trade of the United States will soon be fighting for lower import duties in the United States in order that more favorable treatment may be secured for American automobiles shipped abroad recalls that the attitude of the rubber industry when the present tariff law was being written. Representatives of the Rubber Association and various big producers of rubber goods appeared before the Congressional committees with the astounding request that duties on rubber goods be kept at low levels. On the most important item, tires, they would have preferred to see no duty at all but a revenue duty of ten per cent ad valorem was finally imposed. The theory of the tire makers was that they had more need to be apprehensive of retaliation abroad that of competition at home.

What Pigment for Red Inner Tubes



Antimony Sulfide, either Crimson or Golden, produces fairly bright shades and has no adverse effect on the aging properties of the compound—but it is expensive

or

Iron Oxide is cheap—but it hastens the deterioration of stocks which contain it

or

Du Pont Rubber Orange Yo

possesses all the advantages of both Iron Oxide and Antimony Sulfide and none of the disadvantages of either. Many manufacturers of inner tubes are using this du Pont Color to obtain

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Sidelights On The Paris Rubber Show

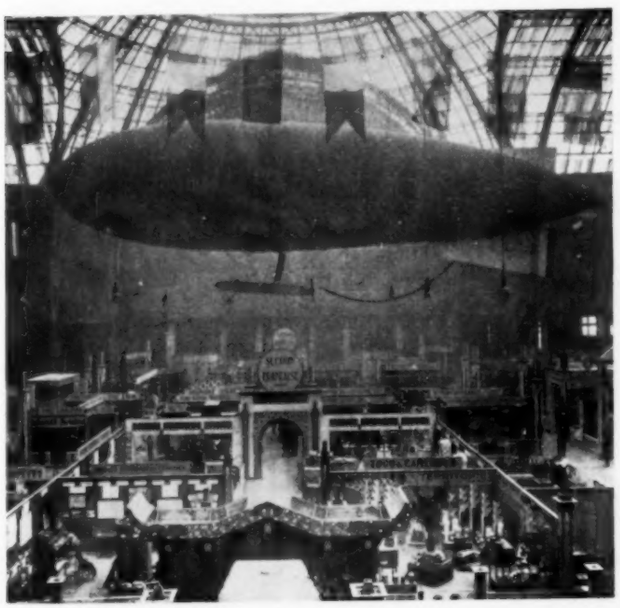
Seventh International Exhibition of Rubber and Other Tropical Products Gives Emphasis to Raw Materials Although European Rubber Manufacturers Participate Readily.

IF THE international rubber exhibitions of which one hears so much every three years or so were limited strictly to crude rubber and goods manufactured from it, much of the color and distinction would immediately be gone from the shows. The management of these enterprises, however, have wisely broadened their scope to include the all-embracing "other tropical products" and as a result the exhibitions have an almost unequalled chance to make themselves more beautiful and popular than the usual industrial fair. Of this opportunity full advantage was taken in the seventh exhibition which closed in Paris on February 6.

M. Leon Perrier, the French Minister for the Colonies, formally opened the Exhibition on January 21. This was regarded as especially appropriate since the purpose back of the Exhibitions, aside from the commercial interests of the promoters, has been the development of broad agricultural enterprises in countries and colonies throughout the tropics. Non-agricultural products are usually exhibited by some of the participants but tropical agriculture, and more particularly rubber culture, is the dominant note of the shows.

There were approximately 200 stands or booths at the Rubber Exhibition this year although there were not so many exhibitors, several booths being taken by one exhibitor in a number of cases. This was especially true in the case of the Belgian and French associations of rubber manufacturers, some of the larger colonies and the Rubber Growers' Association of London.

The largest exhibit of all was that of the Rubber Growers' Association. Although that organization is a regular exhibitor at all sorts of trade fairs where there is an opportunity to impress the public with the usefulness of rubber, it is at the Rubber Exhibitions that the most elaborate effort is made. The Association's effort this year was built around a "rubber house" which was in reality a series of rooms in which rubber had been used in every way possible. During the exhibition thousands of people walked through these rooms and examined with interest the multitude of ways in which rubber had found a use. The rubber floor coverings were especially commented upon.



The Entrance to the Rubber Exhibition Was Made Impressive by this 2-passenger Marine Balloon Built of Fabrics from the Factory of Hutchinson, the French rubber manufacturer.

The Entrance to the French Indo-China Exhibits was one of the Most Beautiful of all at the Show.

The Rubber Growers' Association also followed its usual inclination to make clear to the public how rubber is produced and prepared for the market. This was cleverly accomplished through a minature model of a rubber plantation. An extensive display of rubber goods of sorts with which the public is not so familiar took up the remainder of the Association's stands.

Twenty governments took part in the exhibition but, as usual, the stands of British Malaya and the Dutch East Indies were by far the most elaborate. In each case about one half the space was given over to rubber and the remainder to other agricultural products. The system of rubber production was completely outlined in the British Malayan exhibit.

On account of the Exhibition being held this year in the French capital, French Indo-China had an unusually elaborate exhibit of its products, rubber being shown among them although the emphasis in that direction was not so pronounced as in other cases.

The rubber manufacturers' exhibits, of which there was a greater proportion this year than formerly, were principally under the auspices of the French and Belgian Associations. The manufacturers of the country in which the exhibition is held are expected to lend full support to the undertaking and the French manufacturers had not failed to fulfill that obligation and to impress the French public with the range and quality of the rubber goods made in their own country. Taken together, the French manufacturers occupied more than fifty stands while others were taken by French companies supplying equipment or materials to the rubber factories. Considerable emphasis was given to waterproof goods.

A good impression was made on the visitors to the exhibition by the display of six Belgian manufacturers who are responsible for the production of most of the rubber goods in Belgium. Tires and all sorts of rubber goods were shown. In addition to these exhibits Belgium was represented by a handsome display of the products of the Belgian Congo which had been arranged by the Ministry of the Colonies in Brussels. Both the mineral and agricultural resources of the colony were revealed. Rubber, cotton, cocoa and palm kernels received the greatest emphasis.

The American tropics were not without representation. Brazil had one of the most impressive displays of all, a distinct tropical atmosphere having been secured through the introduction of many tropical plants. The importance of Brazil's wild rubber wealth was brought home to everyone who exam-

ined the exhibit. Colombia also had an impressive display of her natural wealth.

Several British rubber firms were represented as well as British chemical and machinery houses. The only American representation was indirect. European representatives of the R. T. Vanderbilt Company and the U. S. Rubber Reclaiming Company, both of New York, showed samples of the chemicals and reclaimed rubber which they were importing.

The usual conferences were held in connection with the Exhibition, the first week being devoted to rubber and the second to cotton and other products. The greatest disappointment in connection with the exhibition perhaps lay in the attendance at the conferences at which some of the world's leading rubber experts had been induced to appear. The poor attendance was held to be due to lack of organization as well as failure to provide suitable quarters for the conferences.

A spirited discussion over the merits of sprayed rubber featured the week of the rubber conferences. On behalf of Ernest Hopkinson, vice-president of the United States Rubber Company and inventor of the rubber spraying system, G. H. Gotz read a paper on "The Spray Process of Preparing Rubber from Latex". The general tenor of this paper was to the effect that the more the spray process was used, the more his company was convinced that it had many advantages. It was reaffirmed that sprayed rubber had better vulcanizing and ageing qualities.

Dr. H. P. Stevens of the Rubber Growers' Association thereafter read a paper in which he did not agree with the optimism which had been expressed about sprayed rubber. He had found that sprayed rubber took longer to mill and about double the power was consumed in milling it. He felt that this might account for the process having failed to find a wider use. He also challenged the desirability of the extra constituents which are found in sprayed rubber due to their not having been washed away as in the coagulation process. There was considerable discussion concerning the effect of these constituents but is was finally agreed that in the end the answer would come from the rubber manufacturer whose favor would establish the system of rubber preparation that suited the rubber goods factory in the best way.

Other papers dealt with plantation procedure and the use of latex. During the second week of the conferences cotton cultivation received much attention, it being particularly stressed that cotton growing within the British empire should be encouraged. A report was made as to the favorable progress in this direction. This activity is guided by the British Cotton-Growing Association which illustrated the results of its work with a prominent stand at the Exhibition.

Using Motion Pictures in Selling Equipment

Akron Manufacturer of Tire Factory Equipment Finds That A Portable Motion Picture Outfit is a Valuable Sales Aid

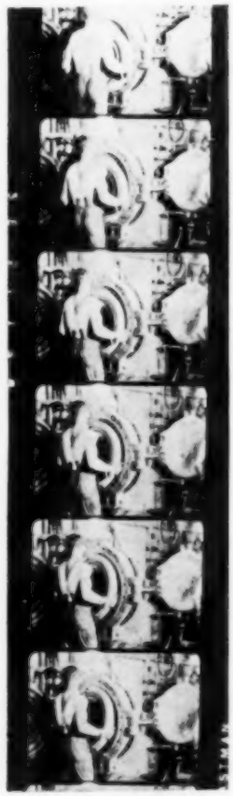
PORTABLE MOVING picture machines have proved to be such a help to their salesmen in explaining equipment to prospects that the Akron Standard Mold Company of Akron, Ohio, plans to continue their use indefinitely and, according to A. J. Fleiter, vice-president and general manager, new films will probably be made as additional equipment is developed. The Akron company conceived the idea of using moving pictures in this way several months ago and is believed to be the first and only company of its kind to adopt such a sales aid for its representatives.

The equipment consists of a collapsible Bell & Howell Automatic Cine Projector and the special films. When not in use, the projector can be placed in a carrying case which is 8 in. wide, 8 in. high and about 10 in. long. The weight of the projector and carrying case is about 21 pounds. This light weight makes it possible for the salesmen to take the machine to the office of any prospect.

The machine is attached by lamp cord to any electrical outlet and by darkening the office slightly it is possible immediately to show moving pictures of the manufacture and use of Akron Standard Mold equipment. A wall or a piece of white paper about two feet square may be used for a screen. The film used is of a small size which makes it possible to have from 1,000 to 1,200 feet to the reel which will show about eight minutes at normal speed of the machine.

The films were all made by expert motion picture men who visited the company's manufacturing plant as well as tire factories in order that views of the manufacture and use of the company's products might be faithfully reproduced.

In one film, a small section of which is reproduced in connection with this article, there are included pictures of the company's watch-case vulcanizer in operation. Every step in the process is made clear. The prospective customer sees how tires are placed in the vulcanizer, how the hydraulic cylinders close the vulcanizer and how the locking ring locks the mold for cure. When a sufficient time is assumed to have passed, the reverse steps are shown, ending with the removal of the cured tire.



Section of the Akron Standard Mold Film Showing the Company's Watch-Case Vulcanizer in Operation in a Tire Factory.

Another film shows the company's airbag inserting machine in use. The films also show the conveyor method of transferring bands from the bias cutter to girls who splice the bands and wrap them in liners for the company's automatic tire building machine.

The Bell & Howells projector itself may not be very expensive, the preparation of the films may cost a large amount. The cost of films differs with the difficulty of photography, length and change of scenes. The Akron Standard Mold Company has found a welcome for its pictures and feels that they are explaining their products so much more adequately that the investment in the films is regarded as thoroughly justified.

This use of films is quite different from that of the commonly known "industrial films" which are given a wide distribution throughout the United States. The latter usually have a popular appeal and are shown before large audiences in order to increase the good-will and consumption of particular commodities. The Goodyear and Goodrich films, illustrating the production of rubber and its eventual manufacture into tires and other rubber goods, are examples of such pictures. The appeal of the Akron Standard Mold film, on the other hand, is entirely specialized. The nearest approach to it known in the rubber industry is such a film as is used by the Boston Hose and Rubber Company to impress jobbers with the care with which the company's rubber goods are made.

Broderick Defends Restriction as Protective Measure

In This Clear and Interesting Address, Delivered at the Rubber Exchange Banquet, J. Joyce Broderick, C.M.G., Commercial Counsellor to the British Embassy in Washington, Upholds Britain's Interference with the Law of Supply and Demand and Urged American Investment in Rubber Planting.

GENERALLY SPEAKING, it is a great mistake for anyone engaged in diplomatic activities to consent to appear on a public platform at all. The reasons are obvious. In my own case, and at the present time, it is, I think, a double error. For in the first place I shall only reveal to you again, and since you have this microphone in front of me, I fear I am revealing to a much wider audience, how very little I know of the oratorical art. And in the second place, the things that you wish me to discuss are not concerned with a harmless material of a contented industry but with a certain high explosive commonly known as rubber.

However, I have resolved to abandon the common sense of diplomacy on this occasion and consequently I stand before you now as the representative of the great rubber monopolist. (Laughter.) If I really stood before you in that role I should find that words would come with more than usual difficulty for, seriously, we have forgotten the language of monoply in Britain. And I think it is fair to remind you that for a long time we have clung with great tenacity and in spite of some discouragement to the doctrines of that distinguished school of economists who first, or at all events most effectively, expounded the principles of free and unhampered exchange.

It is perfectly true that the countries of the British Commonwealth produce the greatest proportion of the world's supply of a great variety of materials which are essential to the industry of every complex, well-developed industrial country. A list of such materials would be singularly impressive. It is impressive indeed if I only mention a few of them: nickel, cobalt, asbestos, mica, jute, tin, palm kernels, ostrich feathers, diamonds, gold—every one of these is a material of which the largest proportion of the world's supply is produced in one or more countries belonging to the British Commonwealth. They, as well as rubber, are materials which are essential in the industries of every great manufacturing country.

Supplies of Materials Always Obtainable

And when did you ever hear of any difficulty in obtaining supplies of them? Did you ever hear that you could not obtain supplies of them at any time on precisely the same terms and conditions as British manufacturers could? Indeed, the British people themselves, until the war broke out, never realized that the countries of the British Commonwealth produced the preponderent proportion of the materials that I have mentioned, so little was there any attempt or any idea on their part to make monopoly profits out of the circumstance.

Of course when the war broke out it became necessary to conserve the supplies of those materials for the allied countries and naturally also to prevent them from falling into the hands of the enemies of Britain. But there are many of you seated here tonight that know as well as I do that our first care at that time was to see that an abundant supply of those materials reached the manufacturers of the United States. And these same gentlemen know that the control over the distribution in the United States of those materials of British origin was vested not in our hands but in your own. We have confidence and we had every reason to have confidence in the guarantees that you gave us concerning them.

I mention that to show that our general conduct, if I may put it that way, abhors the idea that we are attempting or have ever attempted to make monopoly profits out of any material that is produced in the British Empire. There were no monopoly practices connected with the materials that I have mentioned and there is no suggestion or attempt to make monopoly profits out of rubber.

Now, although it is perhaps a moment late to say it, still I do say it, that I have no intention of embarking on controversial topics. I agree perfectly that we may all have our own opinion with regard to the necessity or with regard to the expediency of particular measures of protection of a particular industry. Neither shall I take up your time in giving quotations of figures of production and consumption of rubber. The only thing I want to do at this time is to call attention to certain facts in the situation which tend to become obscure or distorted with regard to the discussion of rubber restriction, but which nevertheless as facts should be recognized and borne clearly in your mind when you are considering this question.

Restriction Planned to Save an Industry

And the first of these is that the restrictions were adopted not for the purpose of pushing the price of rubber to inordinately high levels. That was not the purpose at all. If that were the purpose, or if that were the policy, it would have been a childish and a foolish and a suicidal policy and I hope you give us credit for too much common sense to adopt it. The sole purpose of the restriction was to save an important industry, important I think to you and equally important to the rubber growing areas of the British Empire—to save that industry from too harsh an application of the law of supply and demand.

Now the law of supply and demand is a very hoary and respectable friend of ours. I have a great respect for it. I should like to see it left alone to work itself out as much as possible without interference on the part of anybody. In other words, what I am telling you is that my own ideas tend to be free trade ideas. But I do observe the fact, nevertheless, that in the different countries of the world the law of supply and demand has been considerably interfered with, that it is not an uncommon practice of nations to do something or another that interferes with that law for the sake of legitimate protection of a particular industry. It is sometimes very inexpedient, but it is never considered illegitimate to interfere with the working of the law of supply and demand when the case demands it.

It is inevitable that situations will arise in every country in the world—they have risen recently in this country in connection with cotton and with wheat—when it is perfectly fair and perfectly proper and admitted that a reduction of acreage and a consequent reduction of the output of the crop is a reasonable means for overcoming price depression or getting rid of the hampering surplus. So that if the restrictions are attacked upon the ground that they interfere with the law of supply and demand, it is not a point that is well taken, although I do agree that they might legitimately be criticized on the ground that they interfere unduly or in some way interfere in a left handed manner with the proper workings of the laws of supply and demand.

What I want you to realize is that in imposing those re-

strictions, the object of the Government was the legitimate protection of an important industry. They might have made a mistake in doing it, but their purpose was sincere and genuine in doing so and had nothing whatever to do with monopoly profits, statements to the contrary notwithstanding.

Another point is that the growers of rubber are not organized as a unit or in any position to present a united front in the selling of the material. It would be still less accurate to suggest that the Government as a Government has any hand in the sale of the material or is directly concerned with organizing the producers of rubber as a unit to present a united front to the purchasers abroad. And the measures were adopted with the full realization at the time that one of the possible, and in fact, probable results of that would be that the authoritative position of the British Empire as a rubber producer would decline in the face of crude rubber producing competitors. That is what has happened, and that in itself and the realization that that was about to happen must surely be clear proof of the sincerity of the authorities that put the restrictions into force.

But even though the British Empire has suffered a decline in relative importance as a grower of rubber, no complaint has been heard on that score from British producers themselves. They have been content to accept, as possibly an inevitable result of the situation, what might properly be called a sacrifice of position for the sake of preserving the industry from the serious consequences that they believed threatened them at the time that the restrictions were put into force.

Attempts to Meet Restriction Criticism

Another fact is that divergent views on the merits of restriction as medicine for the disease which beset the rubber growing industry at the time have been received with great respect in Britain, and the genuine efforts that have been made to meet the criticism coming from consuming countries. I myself have been fortunate enough to be instrumental in placing before the proper authorities the views of United States consumers in this regard, and I think that you probably will agree that an effort has been made to take away some of the uncertainties that were attached to the original plan, giving effect to some suggestions emanating from this quarter to make the plan more rapidly responsive to a wide price fluctuation in either direction. It may not yet be perfect and the ground is still open for suggestion, but the attempt has been made and, as I said, the criticisms and suggestions received from the United States rubber trade interests have been examined with the respect to which they are entitled.

Another thing that has been done, which I think probably has met with your approval here, is that the unused coupons have not been deprived of their validity, although at the moment I am not quite sure of the effect of that. Presumably it is to limit restriction of the supply, so to speak, and allow a certain amount of rubber to come forward, that would not come forward if these coupons were cancelled. It cannot be too plainly asserted that the object of the restrictions was the stabilization of the price at a level which would be fair to producers and consumers alike.

High Profits Should Interest American Capital

It is undoubtedly true that specially high profits have been made by some of the producing companies—and that leads me to the suggestion that it might be a wise thing for you to consider whether American capital may not flow in greater measure than it has in the past to the rubber producing industry. I might also suggest that you consider interesting yourselves to a greater extent in the shares of London rubber producing companies. This is not a suggestion that you should speculate in such shares, but investment in the shares of profitable companies is a good way to participate in the advantages that you say they have now. I am sure that such investment would be a sound development in the situation and I hope that it will come about because it would tend to take the hard edges off this rubber question. It would furthermore tend to make the view of the United States not merely a consuming point of view but also a growing point of view, while Britain would have her point of view changed somewhat from that of growing to that of consuming. By doing that you would probably take away some of the possible—I don't say actual—asperities of a very difficult question.

And by the same token, I have nothing but the best wishes for any enterprise on the part of the Americans that may seek to produce rubber, or to invest a large amount of capital in any country where rubber can be produced in larger quantities to meet the needs of industry. There would be absolutely no jealousy or cause of jealousy in that regard.

Strategical Releases of Rubber

The rubber restriction scheme in itself, may possibly fail to bring about price stabilization, but that undoubtedly is its purpose. Three or four times last year when the situation was probably at its most acute stage the suggestion was made that there should be what was known as strategic releases of rubber. That I interpreted to mean that the restriction regulations should be strategically suspended.

Now, personally, I feel frank to tell you that I did not agree with the wisdom of that proposal at all, and I think that most business men if they were to examine carefully the possible results of such a proposal, would hesitate before they placed in the hands of a particular official, no matter how enlightened and how well informed and how impartial he might be, the power suddenly to declare that an emergency existed in the raw material in which they were dealing. If I were the official concerned, I should certainly not like to have placed upon my shoulders the responsibility of declaring when an emergency arose and when it had passed in connection with the material which was working under certain automatic restriction lines, and on the faith of his working the merchants and manufacturers had determined their production and purchasing policies; and if that responsibility were thrown upon me, I should certainly make efforts to divide it with the trade themselves.

And that brings me to this suggestion: that I personally should welcome, and I am sure that all the authorities in England would welcome, the development of any plans which would bring about more frequent consultation between the interests on this side and the growing interests in England. (Applause). It is probably a platitude, but it is nevertheless an important platitude, to say that such frequent consultation provides the best means of gaining an understanding of the motives and conditions of either side on the part of the other. It is easier to condemn them than to understand, and the consultation that I refer to in the mutual acquaintance of the people engaged in this industry, should make each side realize that they are both grower and manufacturer and merchant and that they are all simply partners in the same industry.

Attempts to Stabilize Restriction

There have been some recent developments which I think make for stabilization; that is to say, for the fluctuation of a price only within reasonable limits. One of those developments was, I venture to believe, the formation of a group in this country, to purchase a supply of rubber which would be used as a pool to prevent the market from going too high or from going too low, and I think that if the power that that group can undoubtedly exercise be exercised judiciously, as I am sure it will, their activities should prove an important stabilizing factor.

The other stabilizing factor is your Rubber Exchange. I believe that the formation of the Exchange and the growth that it has had is a highly important stabilizing factor in the rubber industry at the present time. (Applause). And I believe the more its facilities develop, the greater will be its influence in that regard.

For that reason I congratulate you for the things that have already been accomplished by the Exchange. I am indebted and grateful to you for your kindness in giving me an opportunity to assist at your first birthday ceremony, and of bringing you from the rubber monopolist, if I may use the expression again, a message of sincere good will for your success and prosperity and a distinguished career. (Applause).

Rubber Devices Used on Cycles

Manufacturers are Not Far Behind Automobile Factories in Using Rubber to Absorb Shocks at Various Points on Frames

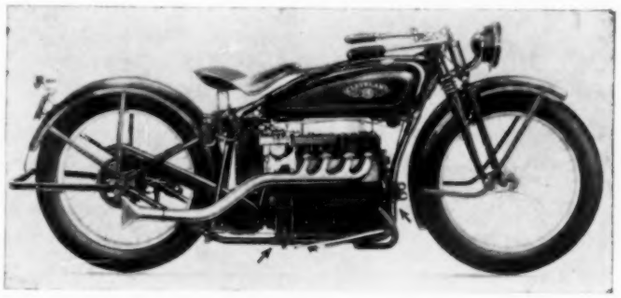
By G. Haines Trimingham

ALMOST UNIVERSAL use of balloon tires; rubber handlegrips in a wide variety of sizes and styles; the adoption of rubber blocks as shock absorbers on the frames, and rubber sections in gas and oil lines to eliminate leaks—these were the highlights from the rubber viewpoint of the 13th National Motorcycle, Bicycle and Accessory Show. This exhibition, held in Madison Square Garden, New York, from Jan. 31 to Feb. 5, focussed the attention of the cycling public on low pressure tires and other improvements, and any visitor making inquiries at the numerous colorful booths was soon convinced that the motorcycle manufacturers were not far behind the automotive engineers in adopting tested improvements that are based on the physical properties of rubber.

Rubber manufacturers have expressed a particular interest in the use of rubber vibration absorbing blocks on the new models of the Cleveland 4, manufactured by the Cleveland Motorcycle Mfg. Company, Chicago. On this machine rubber mountings are used at three points of suspension to protect the engine from the unusually hard shocks to which all motorcycles are subjected. It is also worth noting that the Cleveland claims to have made use of the low pressure tire idea long before balloon tires were adopted by automobile manufacturers. Back in 1921 the salesmen were instructed to tell purchasers about the tires, calling attention to the fact that 3½ inch tires were used on a machine weighing less than 200 pounds. As these tires were usually run underinflated, it is probable that the old Cleveland users enjoyed some of the advantages of low pressure tires.

The Excelsior Super-X comes from the factory equipped with 25 x 3.85 balloon tires, and only on the racing models are 26 x 2½ high pressure tires used. The Henderson machine manufactured by the same company is shod with 27 x 3.85 balloons. In common with most of the other motorcycle manufacturers, this company supplies high pressure tires only on special request, except on its racing machines.

A few of the Cycle Handlegrips manufactured by the Manhattan Rubber Mfg. Co., Passaic, N. J.



Arrows Indicate Points at which Rubber Blocks are Used on this Cleveland 4

Rubber was employed for other purposes than tires and handlebar grips on two other motorcycles exhibited at the show. Jonas B. Oglaend, Inc., displayed the B. S. A. and Douglas machines, both of which are manufactured in England. Yet they are shod with 26 x 3.30 U. S. Royal Cords. Rubber supports are used under the gasoline tank to absorb vibration at high speeds on rough roads and practically eliminate any chance of the tank springing a leak. For much the same reason, rubber tubes are used to connect metal sections on all oil and gas lines.

Although one would never know it unless he asked, rubber was put to still further use at the show in waterproof motorcycle suits, with hoods and hookless fastenings, made by the Rubber-All Company, 35 W. 25th St., New York, and exhibited by the American Easting Company. The J. H. Graham Company, Torrington, Conn., which specializes in patented pedals, showed various models, all of which were provided with ⅞ inch non-blooming rubber in various tread styles.

The tire equipment of the various motorcycles exhibited at the show may be compared from the following table:

MOTORCYCLE TIRE SIZES

Make	Size High Pressure	Size Balloon
B. S. A.	.....	26 x 3.30
Cleveland	.....	27 x 3.85
Douglas	.....	26 x 3.30
Excelsior Racing Model	26 x 2½	.....
Excelsior Super-X	.....	25 x 3.85
Harley-Davidson	27 x 3½	27 x 3.85
Henderson	.....	27 x 3.85
Indian Prince	.....	26 x 3.30
Indian Big Chief	.....	27 x 3.85
Indian Scout	.....	25 x 3.85

Motorcycle salesmen at the show were enthusiastic about balloon tires. They declared that if there are any motorists who have yet to be sold on the advantages of the low pressure tire, they need only consult

motorcycle enthusiasts to be convinced of its superiority from almost every angle. It is undoubtedly a fact that on no other type of vehicle do the tires receive such hard usage. Motorcycles of 20 horsepower are not uncommon, and it is easy to imagine the wheel spin that occurs before the machine moves when the driver lets in his clutch suddenly and connects a racing engine to the single wheel in the rear. And what automobile driver going along under the impression that he is travelling at a good rate of speed has not been passed on white concrete stretches of country road by a motorcyclist hitting it up at 55 or 60 miles an hour? The motorcycle usually travels at a higher average speed rate, and the tires are therefore subjected to higher temperatures.

Because of its size, weight and ease of control, the motorcycle is often driven over roads impassible for automobiles. In the cities, drivers frequently scrape along the curb when stopping, with consequent injury and abrasion to the side walls of the tires. Because they are able to take corners and curves at much higher speed, the tires on motorcycles are subjected to far greater lateral shear forces than are passenger car tires, with consequent greater strain on tread and carcass. In decelerating, all the traction is exerted on the rear tire, whereas, on automobiles, it is distributed over two or four tires, depending on whether the car has four wheel brakes.

Motorcycle Tires Stand Up

Yet, motorcycle tires stand up. Cases are known where they have delivered as great mileage as the larger automobile tires with five and six plies.

Motorcycle low pressure tires are to a disadvantage from only one angle—that of speed. It appears to be the consensus of expert opinion that greater speed can be attained with smaller tires, and for police work and racing, high pressure tire equipment is always ordered.

Three companies—Goodyear, Firestone and U. S. Rubber—manufacture the greatest part of the original tire equipment and as a result, most of the motorcycle tires used in this country. Most of the motorcycle makers give their purchasers the option of choosing from these three brands. For instance, on the Harley-Davidson models exhibited, 27 x 3.85 balloon tires were used, with purchasers' option of selecting their own brand of tires. This company is one of the few which still supply high pressure tires on regular models on request.

It was pointed out that motorcycle balloon tires are practically confined to three sizes: 26 x 3.30 for the smaller machines; 25 x 3.85 as equipment on many of the machines exported; and 27 x 3.85, the most popular size on machines used in this country. High pressure fabric tires are also made in three sizes: 26 x 3, 28 x 3 and 27 x 3½.

It is interesting to look over some of the old lists. For instance, in 1910 the G. & J. Tire Company, Indianapolis, a subsidiary of the U. S. Rubber Company, was manufacturing 13 sizes of motorcycle tires ranging from 26 x 1¾ to 30 x 2½, with four different treads. The company now confines its production to three sizes of high pressure tires and tubes and three sizes of balloon tires. All the U. S. Balloon Cords are manufactured at its Morgan & Wright factory, but the high pressure fabrics and all the tubes are still made in the G. & J. plant. U. S. Motorcycle balloons are manufactured of practically the same latex-treated web fabrics which go into passenger car tires, but the carcass is made up of only two plies.

Motorcycle manufacturers admit that America lags behind the British Isles in her ability to absorb their products. Of approximately 100,000 motorcycles made in this country in 1926, about 50 per cent were exported. In England motorcycles are used extensively for short evening runs, even by individuals who own a car, and the high cost of petrol and high motor taxes mitigate in favor of the cycle.

Extent of the Industry

The extent of the motorcycle tire industry is shown by the current report of the Rubber Association of America, compiled from replies to questionnaires. Although all manufacturers do not furnish data to the Association, the ones who do not submit reports make only a very small fraction of all the motorcycle tires and tubes produced in the country. For this reason, the report of the Rubber Association may be regarded as a good index to the size of this business.

Motorcycle tires and tubes valued at $2,083,000, in which 318 tons of rubber were used, were made in 1926, against a quantity valued at $2,189,000, in which 406 tons of rubber were consumed, in the previous year. The figures tend to prove that the manufacture of tires of this kind has passed its peak, but both tire manufacturers and motorcycle companies are loath to admit the fact.

On the other hand, tire manufacturers claim that the bicycle tire is a much more stable factor. As long as children play, it is probable that bicycles will enjoy a degree of popularity approaching that of recent years, for every boy must have a cycle at some stage of his career. Many models were on display at the show, and from a rubber standpoint, the most conspicuous feature of these was the white and red tires used almost exclusively in all sizes. Few black tires were seen. Tires of the clincher variety are still in demand in some sections of Pennsylvania and North and South Carolina, where cyclists believe they can obtain greater mileage by using tubes they can repair themselves. Approximately 800,000 bicycles are manufactured and sold each year in the United States, and the manufacture of bicycle tires is a larger business than the uninitiated might suppose. The quarterly report of the Rubber Association shows that in 1926 bicycle tires valued at $2,860,000 were manufactured in American factories, compared to a total value of $3,011,000 in 1925. During the year just ended, 755 tons of crude rubber were used in making bicycle tires, against 811 tons of rubber used for this purpose in the preceding year.

What the A.S.T.M. Did in 1926

During the year 1926 Committee D-9 on Electrical Insulating Materials of the American Society for Testing Materials carefully revised its various methods and submitted revisions of a number of them.

The committee is also making a compilation of abstracts of published articles on methods of test for deterioration. Work has been started on the development of various new tests, including a bend test for flexibility.

The Society through Committee D-11 on Rubber Products continued its activities on performance and aging tests. In connection with the development of the flexure tests for rubber belting, seven machines built to the requirements of this committee were installed. Attempts are being made to correlate the results of these tests with service tests. So far, the Society reports, the machine has proved of definite value for development work. A comparison of relative abrasion resistance of two compounds on a large number of abrasion machines was carried out and a further research program is under way to correlate machine tests with service tests.

New U.S. Rubber Spring Mount

New Connection for Automobile Frames and Springs Is Announced After Twelve Companies Have Tested It

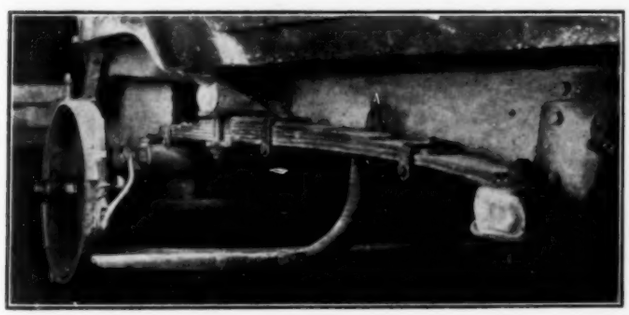
By Walter C. Keys
Engineer, United States Rubber Company

CONNECTIONS BETWEEN automobile frames and springs have always presented a serious and unpleasant problem for engineers. Shackle plates, spring eye bushings and spring eye bolts may be made of the best materials by the best possible workmanship, but in service they are subjected to dust and road splash, resulting in wear, which destroys the good fits that existed when parts were new. With all conventional shackles, frequent lubrication and occasional repairs are necessary.

Recognizing these facts, the United States Rubber Company has developed a spring mounting consisting of a pair of outwardly extending studs, threaded at their inner ends into steel plates, which plates are surrounded by layers of reinforcing fabric. The fabric, plates and part of the studs are entirely encased in rubber of suitable composition to withstand the necessary distortion with requisite life.

The U. S. Rubber Mount provides a cushion which reduces the high frequency vibrations imparted through the tires and springs to the car body, and materially reduces the fatigue to passengers over journeys of any appreciable length. Lubrication is unnecessary, a fact which saves money and labor. Shackle wear and rattles are eliminated, and shackle adjustments are unnecessary. This last-named advantage will be appreciated by many motorists who have experienced the extreme hard riding and discomfort which results when shackles have been adjusted too tightly.

The rubber mount has been found to increase very materially the life of chassis springs on cars and on vibratory testing machines. Mr. Harry E. Figgie, who has perhaps had more spring experience in connection with the U. S. Rubber Mount than any other spring engineer, states conservatively that they will easily increase the life of a chassis spring to three times its life with conventional shackles. This statement was made as the result of his observation of springs on many cars. We believe the increased spring life is due to the absorption by the rubber mounts of high frequency vibrations.



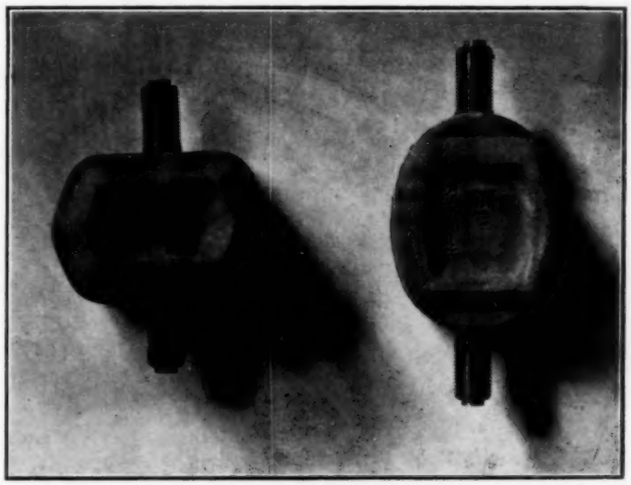
Installation of U. S. Rubber Spring Mounts at Three Points on a Heavy Truck Spring

It is to be expected that other vehicle parts will be similarly benefited.

This non-metallic connection between running gear and body reduces noises which may otherwise be very objectionable. Its appearance is clean and pleasing and it has no bad effects on steering and brake linkage. It does not impair the general roadability of the vehicle and appears to have lessened shimmy in some cases.

Part of an address delivered before the annual meeting of the Society of Automotive Engineers, Detroit, Jan. 25-28, 1927.

A very considerable saving in the cost of frames can be effected due to the elimination of the expensive brackets which are customarily used for attaching the ends of springs to the frame. Money is also saved on chassis springs, due to the elimination of bushings and all forming operations on the main leaves. The cost of the device itself is moderate.



Two Types of the U. S. Rubber Spring Mount

When intelligently applied to a vehicle, there is no dangerous sidesway with these mountings. From the various standpoints of assembling, manufacture, purchasing and service, the total number of parts in the spring connections is considerably reduced.

One of the main problems confronted in the development of the U.S. Rubber Mount was that of adequately controlling the front and rear axles so as to prevent their shifting forward and backward with respect to the frame. This led to the development of the ball and socket type of shackle. In this construction, one of the projecting studs is made with a ball on its inner end which engages in a socket secured to the other stud in such a way as to permit relative angular motion of one stud with the other; also, to permit compression and extension of the rubber mount, but to prevent forward and backward or lateral movement of one stud with respect to the other. This produces a result fully equivalent to a conventional spring eye construction. There is a complete rubber insulation between the ball and socket in the vertical plane.

A great deal of experimental work has been done throughout the industry in the adaptation of rubber for spring connections, and this trouble of instability has been most serious, since it affects steering and mechanically operated brakes.

For the unpivoted end of front springs, a type similar in appearance to the ball and socket shackle has been developed, but the ball and socket feature has been eliminated. For the rear of rear springs, where the change in length of the springs (due to flexure) is relatively large, a higher type of spring mount gives satisfactory results, and possesses the advantage of adding a light lateral flexibility when driving over rutty roads, comparable to the universal joint placed at the rear of a three-quarter platform suspension.

Very satisfactory adaptations have been made to the cantilever rear construction, also to the cross spring construction

used on some cars. We have made installations on busses which have since travelled over 10.000 miles with satisfactory results. In all the development work, our company has conferred with representative manufacturers of frames and springs whose criticisms have been favorable, as tending toward simplification.

Over the past two and a half years the development has been under the direction of T. I. Duffy. During the past four months only has the company begun active solicitation as the result of satisfactory proof.

At the present time some 19 companies have taken an active interest in the device, of which twelve actually have it installed on cars on the road, checking ride, roadability and life. Some of these cars have traveled over 40,000 miles with satisfactory performance. Our own company has within the organization five cars with perfect performance records of these mountings on mileages from 11,000 to 40,000.

In using rubber spring mountings, as with any auxiliary device for a spring, a study should be made to work out the best combinations of spring flexibilities. We have found that more flexible springs may be used with our mountings than with the conventional shackle construction.

Application of this rubber mounting has been most successful for supporting motors in passenger cars, busses and trucks. In this place it has the distinct advantage of an absolute non-metallic support of rubber, which is not prolonged by any clamping means. As a silencer and vibration dampener it has proved highly effective.

Two French Captains of Industry

Edouard and Andre, the brothers Michelin.

Edouard Michelin

AT THE beginning of the story of the Michelin brothers and their interest in the rubber industry there is a romance, says *Foreign Trade*, the official organ of the American Chamber of Commerce in Paris.

Had not Edouard Daubree proposed to and married Miss Elizabeth Pugh Barker, the delightfully pretty niece of the Scotch scientist, Mackintosh, while Miss Barker was a pupil at the boarding school directed by Monsieur Daubrée's mother the introduction of rubber as an industrial product into France might have been delayed many years. Madame Daubrée, remembering her uncle's experiments with the solvent action of naptha on india rubber and their application to industry, suggested that her husband and his partner, Monsieur Barbier, take up the manufacture of rubber balls which they did successfully. Some fifty years later, in 1888, the business still a very small provincial enterprise, had become the property of Monsieur Barbier's grandsons, Edouard and André Michelin.

Neither of the brothers was educated to be a business man. Edouard had studied art under the fashionable painters of the day while André, because he disliked the odor of tobacco which hangs about artists' studios, had taken courses at the Ecole Centrale and graduated as engineer. Later he became a manufacturer of iron frame work.

The prosperity of the rubber factory having gradually declined, it became necessary for the two brothers to give up their individual careers and devote themselves to the family interests. Realizing that the increasing vogue of the bicycle presented a field for rubber tires which might profitably be exploited and noting the unsatisfactory systems employed to adjust the tires to the rim, Edouard Michelin undertook to perfect a simpler method for doing this. Prolonged experiments were finally crowned with success, which became still more firmly established when a bicycle with Michelin tires won the Paris-Brest road race in 1891, by a margin of more than eight hours, a victory due principally to facility with which the rider was able to overcome delays resulting from punctures.

Introducing the use of pneumatic tires into other fields, the Michelins placed them on horse drawn vehicles and on February 10, 1896, the Parisians gazed curiously at the first carriage equipped with these novel tires.

In the meantime the two brothers had come into contact with the infant automobile industry. In 1896 the Michelins fitted their primitive four horsepower car with pneumatic tires. Although the venture was considered a foolhardy one, they entered the car in the Paris-Bordeaux race. The first blow-out occurred a hundred and fifty yards before the starting point while the street urchins made fun of the brothers who acted as their own chauffeurs. But they got to Bordeaux. On the way the car caught fire twice and they averaged one puncture for every one hundred fifty kilometers. Still, the car arrived and the crowd that lined the route saw, for the first time, an automobile speeding along on inflated tires.

Andre Michelin

Perhaps more convincing was the merry-go-round which the Michelins installed in Paris. There some of the chairs revolved on iron, some on solid rubber, and some on pneumatic tires. As these chairs passed over a series of bumps the expression of the occupants in the seats with the Michelin "pneumatiques" as compared with the faces of their less fortunate neighbors was an extremely eloquent commentary on the relative comfort of the different types of tires. At the time the pneumatic tire measured 65 millimeters and was supposed to last a distance of 150 kilometers on a car weighing 1,400 kilos. To-day the 185 millimeter tire can travel 40,000 kilometers on a ten ton truck.

In 1905 Michelin produced the studded tire which he called the *semelle Michelin*, the following year he introduced the detachable rim, in 1908 the double tire and in 1919 the famous *cablé*, corresponding to what is known in America as the cord tire. Two years later the 185 millimeter tire appeared and allowed heavy trucks to benefit by the "pneumatique" system. One of the most recent additions to the modifications in tire making popularized by the Michelins was the low pressure "balloon" tire. Only a few weeks ago they put on sale the Confort Bibendum, a feature of which is the easier manipulation of the valve facilitating the changing of the tire.

Since the war the Michelins have identified themselves particularly with the problems improving the housing, social and economic conditions of their workmen and a system of premiums to encourage an increased birth-rate in the families of their employees. This campaign has extended beyond the immediate circle of the Michelin factories and has been widely and favorably commented on as one of the most successful undertakings to remedy the situation created by France's losses in man-power due to the war.

Hevea in the Amazon Valley

Third Governmental Report is Chiefly Botanical and Cites Usual Obstacles in Way of Rubber Cultivation

"THE HEVEA Rubber Tree in the Amazon Valley", the third report to be published as a result of the rubber survey of the Departments of Commerce and Agriculture in 1923 and 1924, is chiefly botanical and brings together much interesting information about the genus Hevea with particular information on *Hevea brasiliensis*. The author is Carl D. LaRue, a botanist who was included among the investigators assigned to the work by the Department of Agriculture.

The results of the expedition, Mr. LaRue admits, add very little to what has already been known about the geographic distribution of Hevea. Work on the distribution of Hevea is difficult and time consuming. Travel on the rivers is very slow and vast distances must be traversed before adequate knowledge of the subject can be obtained. Mr. LaRue suspects that the reason why the Rio Negro is credited with being so much richer in species of Hevea is that the region has been better explored. With conditions as they are, our knowledge of the distribution of Hevea is likely to remain imperfect for some time.

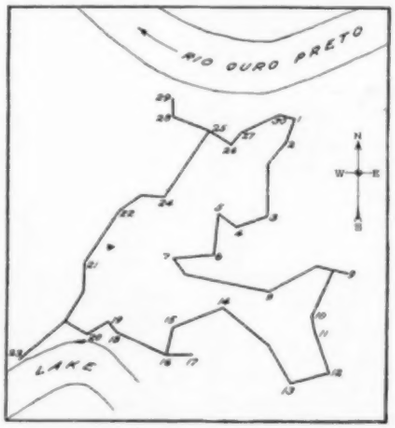


Diagram of a small estrada of virgin Heveas on the Rio Ouro Preto, Matto Grosso, Brazil. The average estrada would contain between 100 and 200 trees, but usually has about 135.

Since no evidence was found that any of the species is equal to *Hevea brasiliensis* in producing rubber, the inability of the investigators to delimit or definitely indicate the location of the various species is not considered important. For convenience, however, the author lists the species of Hevea, other than *brasiliensis*, as follows:

Species yielding fair to good rubber—*benthamiana, discolor, rigidifolia, foxii, pauciflora, minor,* and *cuneata.*

Species yielding poor rubber, rarely collected—*guianensis, nigra, lutea, apiculata, duckei, paludosa, microphylla, spruceana, viridis* and *membrancea.*

Species not yielding rubber, or at least not known to yield rubber—*randiana, similis, confusa, nitida* and *glabrescens.*

The general habitat of *Hevea brasiliensis* is south of the Amazon. *Hevea benthamiana* is one of the leading producers, if not indeed the most important producer, of rubber in the area north of the Amazon. *H. discolor* is another species of importance, particularly along the Rio Negro. Still another species which Mr. LaRue found worthy of mention is *H. foxii* which is the principal source of commercial rubber in the Putumayo district. None of the other species are thought to be exploited to any extent at the present time. *H. brasiliensis* is the only one that has been considered for plantation culture and none of the other species have been given extensive trials.

Solution of Situation in Amazon Valley

The author dwells at length on the status of the rubber industry in the Amazon valley. After reporting fully upon the methods used by the rubber gatherers, he offers some suggestions for remedying the precarious situation in which the industry has found itself since crude rubber prices slumped in 1921. The first is to provide a better and cheaper labor supply. Admitting the difficulty of accomplishing this, he offers the hope that through colonization and the encouragement of more extensive production of foodstuffs in the valley a cheaper and more constant labor supply might be available.

A second means of improving the situation is thought to lie in more economical production. Under methods now in use the loss of latex is very great. Much of it never reaches the cup but drips over the edge of the slanting cut and runs down the bark or drops to the ground. Latex is also frequently lost from cups which have broken along the seams. The adoption of an improved cup is advocated. The rubber which coagulates on the cut is never moved although in many trees it exceeds the quantity secured from the collected latex. Another source of loss is in the scrap which clings to the cups.

There is also a distinct need, Mr. LaRue feels, for the introduction of a better method of tapping since the present careless use of the "machadinho" is both wasteful and injurious to the trees. The Jebong knife and the gouge, which are used for tapping in the Orient, are useless on trees which have been hacked. The tool known as the Amazons knife is very promising as a substitute for the ax. The trees are not entirely free from injury when tapped with it but conditions are much better than when the ax is used. The knife is constantly coming into wider use.

In Mr. LaRue's opinion, Hevea in the Amazon provides a great rubber reserve which will be fully exploited in case a crisis of any sort should cut off the Eastern supply or a serious rubber shortage be encountered. The amount of rubber which the Amazon could furnish cannot be definitely estimated since the number of trees cannot be guessed. Doubtless there is a great variation in the stand of rubber trees in different places but the author doubts whether the tappable rubber trees average more than two per cent of the stand of the Amazonian jungles.

With regard to rubber plantation possibilities in the Amazon, Mr. La Rue accepts the obvious fact that rubber will thrive in many different parts of the Amazon basin but sees many obstacles in the way of a large development. The lack of cheap and abundant labor is taken to be the chief hindrance. Colonizations or the importation of Oriental labor might provide the answer but it is doubtful, in the author's mind, whether Brazil would favor either move.

Lack of Plantations Proved Disappointing

It was a great disappointment to the members of the expedition not to be able to find any plantation of rubber trees in the Amazon which had been planted and maintained as in the Orient. Many scattered, neglected plantings were seen but nothing that would provide a real basis for comparison with the East. The best area of planted rubber seen was at Seringal Miry, an experimental planting near Manaos. The growth of rubber trees along the lower Amazon was found generally unsatisfactory and the region would not be recommended for plantations.

Mr. LaRue also reports briefly on other kinds of rubber and similar gums but offers no new data. Castilla, Sapium, gutta percha and balata are considered.

Many growth and tapping records are introduced in this latest report of the Government. Characteristics of Hevea and the different types are discussed at length. Notwithstanding the previous comprehensive Amazon reports, devoted to the commercial and pathological aspects of rubber in the Amazon, Mr. LaRue's report adds much of interest and will be referred to as an authority in the future when conditions have changed so that wild and cultivated rubber in the Amazon is again seriously considered.

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The London Letter

The GENTLEMAN FROM MINCING LANE will report current opinion in London's famous rubber market in every issue of THE RUBBER AGE

The Gentleman Says "It's A Long Way Up from the Bottom".

LONDON, February 12, 1927.

THE RUMOR is insistent in the Lane that the group of American statisticians representing the American buying pool, who have been in London studying the world position of crude rubber, have come definitely to the conclusion that there is no good reason why the rubber export quota should not be allowed to go down to 60 per cent on May 1. That basis is the lowest possible under the present rubber restriction regulations. Whether the statisticians would recommend that no effort be made to raise the basis after it had been at 60 per cent for one quarter is not known here and it is probable that they do not know themselves. But the rumor about letting the exportable percentage slide on down to 60 per cent is well founded although I cannot quote to you my authority for this statement.

The London rubber world has been surprised and disappointed at the decision of the statisticians. For Americans to fail to do everything possible to prevent a further cut in restriction is regarded as threatening the price stability which the largest rubber consuming country is said so much to desire. But the evidence is ample that we are headed toward the 60 per cent basis. The official price in London during the first nine days of the current quarter has averaged 18.75 pence or 2.25 pence below the 21 pence pivotal price. Of course every day that the price is below 21 pence, the harder it will be during the latter part of the quarter to bring the average up sufficiently to maintain the present 70 per cent basis.

The possibility that the American pool might decide to operate as a powerful stabilizing factor, which would be welcomed by the growers, is causing producers generally to concern themselves about the perpetuation of the Stevenson Scheme for a period longer than to next November 1. This is not only on their own account and to support their own market but also to give the American buying pool definite assurance that the Scheme is going to be continued so that they can buy rubber at the present time without fear that restriction will be abolished on November 1 with a resulting sag in prices.

IF THE pool members figured that the wiping out of the restriction scheme on November 1 would mean a drop in the price to 15 pence or lower, it would of course be impossible to interest them now in November and December rubber which is bringing between 18 and 20 pence. A drop in price to 15 pence at that time would mean a serious loss if a reserve of 25,000 or so tons had been built up. Accordingly, the growers hold the opinion that the uncertainty as to the future of restriction is the true reason why the American buying interests would be inclined to let rubber go to 60 per cent on May 1.

As will be remembered, the Colonial Secretary had some trouble with the Ceylonese growers. Their representatives in the Ceylon legislature were inclined to vote against a continuation of the restriction scheme. Mr. Amery, the Colonial Secretary, promised that consideration would be given to the views of the Ceylon growers before the Stevenson Scheme would be further continued after November 1. This promise constitutes an obstacle in the way of any present pronouncement by the Colonial Office as to an extension of the program after November 1.

So certain are the growers in London of the future strength of raw rubber that they are steadily holding off the market whenever prices go below 21 pence—or at least the big growers who are included in the gentlemen's agreement are following this practice. They are getting advances from the banks to carry rubber rather than sell it. They are willing to sell forward at 21 pence per pound but not at much less than that figure.

IN THE meantime rubber has been moving out of the East at just about the same pace in November and December, after the quota had been reduced to 80 per cent, as it did in August-October when the quota was 100 per cent. The total Malayan shipments in November and December averaged 41,900 tons for each of the months and in the August-October quarter the monthly shipments averaged 42,200 tons. The failure of exports to fall off after the quota was cut is of course due to the use of coupons accumulated in previous quarters.

These figures affecting the surplus coupon situation are exceedingly interesting. During November, December and January, coupons to the extent of about 4,000 tons per month were used in Malaya in maintaining constant shipments. This is equivalent to using up about 12,000 tons of the surplus coupons in that quarter. Since on November 1 Malaya had a surplus of coupons amounting to 24,839 tons, it will be seen that about one-half of them had disappeared by February 1. If this rate is continued, the end of the current quarter will see the end of this reserve so that May will start with the rubber world down to bed-rock, with the consumers forced to rely entirely on the rubber exported under newly-issued coupons.

The disappearance of the surplus coupons in this manner while the quotas are being reduced strengthen the growers in their opinion that they will soon be getting 21 pence for their rubber without trouble.

While the potential production figures are fairly clear, there remains the puzzle as to how consumption will run during 1927. On this point American and British estimates are apart in the usual way, their respective interests coloring their glasses—the one with rosy optimistic colors, the other with a pessimistic blue.

Yours Faithfully,

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"Ageing of Raw & Vulcanized Rubber", G. Martin, B.Sc., A.I.C.
"Set in Vulcanized Rubber", H. Turner, M.Sc., A.I.R.I.Sc.
"Rubber Toys", H. Standring.
"Some Electrical Properties of Rubber", P. Dunsheath, O.B.E., M.A., B.Sc., M.I.E.E., F. Inst. P
"Rubber Pigments from the Point of View of the Manufacturer", C. A. Klein.
"Rubber Statistics", H. Eric Miller.
"Antioxidants & Accelerated Ageing Tests", John M. Bierer
"Rubber Solvents", Dr. D. F. Twiss.
"Proofing", J. Lloyd, A.I.C., A.I.R.I. Tech.
"Difficulties of Rubber Proofed Garment Manufacture", Major N. Blond.
"Production Methods in a Rubber Factory", H. C. Young, M.I. Mech. E., A.M.I.E.E., F.I.R.I.
"A Volatile Oxidation Product of Balata", T. R. Dawson, M.Sc., F.I.C., & B. D. Porritt, M.Sc., F.I.C., F.R.S.E., F.I.R.I.
"The Effect of Magnesium Carbonate on the Transparency of Vulcanized Rubber", Mr. Tanaka, (Japan)
"India Rubber as an Auxiliary to Suspension", Dr. F. W. Lancaster.

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Irregularity Features Crude Rubber Market

Weak Undertone Marked Nearby Positions, Compared to Strength of Deliveries Past June, but Factories Showed Little Interest

NEW YORK, Feb. 17, 1927—During the past two weeks the crude rubber market in more than one period was irregular and featured by cross currents puzzling to the trade, which in every case could not account for them. A decline, which started on the first day of the month and continued for three days, attracted considerable short covering, resulting in slight recoveries. But the market stubbornly resisted the effect of bearish news, most important of which was the continued increase in London stock.

Deliveries beyond June were strong, as it is expected that by early summer the market will begin to feel the combined effect of export reductions to 70 per cent and the disappearance of unused coupons.

Rumors that the American buying syndicate was to be dissolved received little credence in New York but were effective in causing considerable selling in London. The story could be neither confirmed nor refuted. Buying in London sent prices up the following day and the Exchange here wound up from 30 to 50 points net higher and the outside market at least ¼ of a cent higher. Standard production was estimated for the present restriction year at 405,000 tons and consumption at 550,000 tons, with the United States using 370,000 tons.

The almost total lack of buying interest was the principal factor in a listless market during the next few days. Manufacturers were said to have covered their requirements on nearby deliveries, to a smaller extent on March and to an unusually small degree on April-June. Deliveries from July to December have been practically left open.

December tire figures of the Rubber Association, although much better than had been expected, failed to stimulate the market. The gain of 1,062,000 in inner tube shipments and of 735,656 in tire shipments was considered particularly favorable after several months of inventory increase and shipment and production declines.

Crude rubber turned firm over the last week end and the New York market reflected advances in London which had developed on support from importing and plantation interests in the face of a 2,000-ton increase in London stock to close to 57,000 tons, the largest in many years. The shorts were not prepared for the advance and hurried covering gave the market a good start. March started at 37.80, went as high as 38.40 and finished the day at 38.10. Manufacturing interest in the outside market was in evidence, but prices bid were too far under existing levels to permit business. A wide spread also prevailed between buyers' and sellers' ideas in the Para grades.

The market seemed to be in a waiting mood Tuesday and Wednesday. Factory interest was extremely limited and actual buying was small. The Rubber Association report of arrivals during January had largely been discounted, but few expected the total of 45,736 tons and it had a bearish influence which the report on consumption partly offset, as this was more favorable than had been anticipated.

FEB. 17 OPEN MARKET PRICES

Plantations—			
Ribbed Smoked Sheets			
Spot	.38⅛	@	.38⅜
February	.38⅛	@	.38⅜
March	.38⅜	@	.38⅝
April/June	.39¼	@	.39½
July/September	.40¼	@	.40⅜
First Latex, crepe spot	.38½	@	.38¾
Amber Crepe, No. 2, spot	—	@	.36¼
" " No. 3	.35¼	@	.35½
" " No. 4	—	@	.35
Brown Crepe, Rolled	.31	@	.31½
" " Clean, thin	.35	@	.35½
" " Specky	—	@	.35
Liquid Latex, per gal.	1.50	@	1.75
Pontianac—			
Bangermassin	—	@	.17½
Palembang	Nominal		
Prime Pressed	—	@	.27¾
Sarawak	—	@	.17½
Paras—			
Up-river Fine	.29	@	.29½
" Medium	.25	@	.25½
" Coarse	.22½	@	.23
Acre Bolivian, fine	.29	@	.30
Tapajos, fine	.28½	@	.29½
Cut Beni Bolivian, fine	Nominal		
Caucho Ball—			
Upper, shipment	.22½	@	.23½
Centrals—			
Corinto, scrap	.23½	@	.24
Esmerado, sausage	.21	@	.21½
Guayule, w and d	.30½	@	.31½
Africans—			
Benguela, No. 2	Nominal		
Congo, upper, black	Nominal		
" " red	Nominal		
Balata—			
Block, Columbia	.39	@	.40
" Cuidad	.46	@	.47
Surinam, sheet	.73	@	.75
Gutta Percha—			
Sick	—	@	.30½
Red Macassar	—	@	3.00

LONDON MARKET

Standard Ribbed Smoked Sheets—*Buyers*	
Spot	19 d
February	19
March	19⅛
April/June	19⅜
July/Sept.	19⅝

SINGAPORE MARKET

Standard Ribbed Smoked Sheets—*Sellers*	
Spot	18½d
February	18½
March	18¾
April/June	19⅛

RECLAIMED RUBBER

NEW YORK, Feb. 17, 1927—Reclaimers are enthusiastic about the volume of business done in the past few weeks. Production has been on a steady schedule, withdrawals on contracts have been a little larger than during the last two weeks in January and new orders are being received in satisfactory volume. The unsettled condition of crude rubber has not been reflected by reclaims.

High Tensile Black			
Super-Reclaim No. 1	.lb. .19	@	.20
" " No. 2	.lb. .16	@	.17
Shoe			
Unwashed	.lb. .08¾	@	.09
Washed	.lb. .11¾	@	.12¼
Tube			
No. 1 (Floating)	.lb. .18	@	.21
No. 2 (Compounded)	.lb .15½	@	.16½
Tires			
Black, unwashed	.lb. .09	@	.09½
Black, washed	.lb. .11	@	.11¼
Black selected tires	.lb. .10½	@	.11
Dark Grey	.lb. .12	@	.13
Light Gray	.lb. .12½	@	.13½
White	.lb. .17	@	.17½
Truck, Heavy Gravity	.lb. .08¾	@	.09½
" Light Gravity	.lb. .09¾	@	.10¼
Miscellaneous			
Mechanical Blends	lb. .08	@	.09
Red, High Grade	lb. .17	@	.17½

SCRAP RUBBER

NEW YORK, Feb. 18, 1927—Scrap rubber has been quiet during the past two weeks and as a result, prices are a little easier. Slow moving accumulations, however, have had great effect in keeping other grades firm. Stocks in the hands of dealers are so low that any pronounced increase in demand would cause an immediate increase in quotations. Reclaimers have been following a hand-to-mouth policy.

[*Prices to Consumer*]

Auto tire peelings	ton 38.00	@	40.00
Standard White auto	ton 57.50	@	60.00
Mixed auto	ton 26.50	@	27.50
Bicycle tires	ton 25.00	@	26.00
Clean solid truck tires	ton 37.00	@	38.00
Boots and shoes	.02¼	@	.02⅜
Arctics, untrimmed	.01¼	@	.01⅜
Arctics, trimmed	.01⅝	@	.01¾
Inner tubes, No. 1	.09¾	@	.09½
Inner tubes, No. 2, compounded	.07¾	@	.07½
Air Brake Hose	ton 37.50	@	39.00
Rubber hose	ton 20.00	@	21.00

Closing Prices on Rubber Exchange of New York, Inc.

FEB 3 to FEB. 17

	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	SALES*
Feb. 3	36.80	37.50	38.00	38.50	39.00	39.30	39.70	40.10	40.50	40.90	41.10	41.50	239
4	37.00	37.60	38.10	38.60	39.00	39.30	39.70	40.10	40.50	40.80	41.20	41.50	121
5	37.20	37.80	38.20	38.80	39.20	39.40	39.80	40.20	40.40	41.00	41.40	41.80	25
7	37.20	37.80	38.30	38.80	39.20	39.40	39.80	40.30	40.90	41.50	42.00	42.40	195
8	37.00	37.40	38.20	38.60	39.00	39.20	39.60	40.00	40.50	40.90	41.00	41.70	83
9	37.50	37.80	38.50	38.90	39.30	39.60	40.00	40.40	40.80	41.20	41.60	42.00	130
10	37.50	37.80	38.40	38.80	39.20	39.40	39.80	40.20	40.60	40.90	41.00	41.60	116
11	37.40	37.70	38.40	38.70	39.10	39.30	39.70	40.10	40.50	40.90	41.30	41.70	54
12	Exchange closed in commemoration of Lincoln's Birthday.												
14	37.80	38.10	38.60	39.20	39.50	39.70	40.10	40.50	40.80	41.10	41.40	41.50	189
15	37.80	38.00	38.50	39.00	39.50	39.70	40.00	40.40	40.70	41.00	41.30	41.60	158
16	37.50	37.70	38.40	38.70	39.20	39.50	39.80	40.10	40.40	40.70	41.00	41.30	46
17	37.90	38.10	38.60	39.20	39.50	39.80	40.10	40.40	40.70	41.00	41.40	41.80	42

(*) In lots of 2½ tons each; totals are for old and new contracts.
(Prices are for new contracts)

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LEAD OLEATE — LITHARGE
CHROMIUM OXIDE — RED LEAD

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BLANC FIXE — HYDRATED LIME
CARBONATE PINE TAR — **-MAGNESIA-** — HEAVY CALCINED ROSIN OIL
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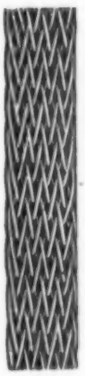

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Entire freedom from bead trouble in the construction of straight side tires is assured by the use of either National "(Patent)" High Tensile Strength, Flat Woven, Bead Braid or our new (Pratt Patent) Bead Cables. These cables, made to dimensions specified, have seven strands, yet only one piece of wire is used without soldered, welded or brazed joint.

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HIGH GRADE

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CLAYS
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RUBBER
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Pennsylvania Fire Clay
Kentucky Ball Clay

UNITED CLAY MINES CORPORATION
TRENTON, N. J.

English China Clay
English Ball Clay

Good Demand for Chemicals Continues

Withdrawals Continue at Satisfactory Rate and it is Expected that Total Sales for the Month will Equal those in January

NEW YORK, Feb. 18, 1927—Executives of practically every chemical company supplying rubber factories were enthusiastic about the business being done. January was an excellent month with many of the chemical factors, but there were a few who did not express a great degree of satisfaction, despite the fact that they were optimistic about February. And thus far the month has lived up to the expectations of even the most sanguinary. It is not expected, of course, that total sales of all companies in February will exceed those in January, but the month will be just as good, it is predicted. Stock of chemicals in the hands of rubber manufacturers are known to be low, but some have showed no keen desire to enter the market and persist in a hand-to-mouth policy. March is confidently expected to be an excellent month. Prices of most chemicals are firm, but drastic reductions have been made on di-substituted guanidines.

ACCELERATORS

Organic

A-7	lb.	.70 @	—
A-40	lb.	.70 @	—
A-19	lb.	.75 @	—
A-11	lb.	.75 @	—
Aldehyde ammonia, crystals	lb.	.82 @	—
Aniline oil, drums	lb.	.17 @	.17½
"BB"	lb.	1.05 @	1.07
Captax	lb.	1.20 @	1.50
Crylene	lb.	.70 @	—
paste	lb.	.50 @	—
Di-Ortho-Tolylguanidine	lb.	.85 @	.90
Diphenylguanidine	lb.	.68 @	.72
Ethylidene aniline	lb.	.60 @	.65
Excellerex	lb.	.35 @	.40
Formaldehyde-Aniline	lb.	.40 @	.42
Grasselerator 102	lb.	.80 @	.82½
Grasselerator 552	lb.	4.80 @	5.00
Grasselerator 808	lb.	1.25 @	1.50
Heptene	lb.	.55 @	—
Hexamethylene-tetramine	lb.	.80 @	.85
Monex	lb.	3.25 @	—
Paraphenylenediamine	lb.	1.25 @	1.30
Piperidine-Piperidyldithio-Carbamate	lb.	4.80 @	5.00
R & H 50	lb.	— @	.65
Super-Sulphur No. 1	lb.	.50 @	—
Super-Sulphur No. 2	lb.	.18 @	.25
Tensilac, No. 41	lb.	.65 @	—
Thiocarbanilide, kegs	lb.	.28½ @	—
Trimene	lb.	.75 @	—
base	lb.	1.20 @	1.35
Triphenylguanidine	lb.	.69 @	.73
Tuads	lb.	3.25 @	3.50
Vulcone	lb.	.75 @	.79
Z. 88	lb.	.75 @	1.00
Zimate	lb.	4.00 @	—

Inorganic

Lead, sublimed blue	lb	.10 @	.10½
Lead, white	lb.	.09¾ @	—
Litharge, domestic	lb.	.10½ @	—
Magnesia, calcined, light	lb.	.06½ @	—
heavy	lb.	.04½ @	—

COLORS

Blacks **(See Compounding Materials)**

Blues

Prussian	lb.	.33 @	.35
Ultramarine	lb.	.08 @	.35

Browns

Siena, Italian	lb.	.04 @	.06
Umber, Turkey	lb.	.04 @	.06

Greens

Chrome, light	lb.	.27 @	.31
medium	lb.	.29 @	.32
dark	lb.	.31 @	.34
Chromium Oxide, bbl.	lb.	.31 @	.38

Reds

Antimony crimson, 15/17	lb.	.27 @	—
sulphur free	lb.	.48 @	.50
golden 15/17 F.S.	lb.	.16 @	.22
Indian English	lb.	.11 @	.13
Oximony	lb.	.13¼ @	—
Para toner	lb.	.80 @	.90
Red oxids, reduced	lb.	.10 @	.11
pure	lb.	.14 @	.15
Toluidine toner	lb.	1.75 @	1.85
Venetian red	lb.	.01½ @	.05
Vermillion, quicksilver, English	lb.	1.55 @	1.65

Whites

Lithopone, Alcolith	lb.	.05¾ @	.06
Lithopone, Asolith	lb.	.05¾ @	.06¼
Lithopone, Vanolith	lb.	.10½ @	—
Zinc Oxide—American Process			
American Azo: ZZZ (lead free)	lb.	.07¾ @	—
ZZ (under 5% leaded	lb.	.06¾ @	.06⅞
Zinc Oxide—French Process			
White seal	lb.	.11¾ @	—
Green seal	lb.	.10¾ @	—
Red seal	lb.	.09¾ @	—

Yellows

Chrome	lb.	.17 @	.18
Ocher, French medium	lb.	.03 @	.03¼
domestic	lb.	.01¾ @	.02

COMPOUNDING MATERIALS

Aluminum Flake (f.o.b. plant)	ton	21.85 @	24.50
Hydrate light	lb.	.16½ @	.17
Ammonia carbonate	lb.	.13½ @	.16½
Are-O-Sol	ton	8.00 @	11.00
Asbestine	ton	14.75 @	18.00
Barium carbonate	ton	50.00 @	52.00
Barium Dust	lb.	.05 @	.06
Barytes southern off-color,	ton	12.00 @	18.00
Western prime white	ton	23.00 @	—
imported	ton	27.00 @	36.00
Basofor	lb.	.04½ @	—
Blacks			
Arrow "Aerfloted"	lb.	.08 @	.12
Bone Black	lb.	.05½ @	.11
Carbon, compressed	lb.	.07½ @	.11½
" uncompressed	lb.	.07 @	.11
Drop Black	lb.	.06 @	.10
Lamp "	lb.	.12 @	.40
Microbex	lb.	.08 @	.12
Thermatomic carbon	lb.	.05 @	—
Velvetex carbon	lb.	.04 @	.07
Blanc fixe dry f.o.b. works	lb.	.04 @	—
Carrara filler	lb.	.01¾ @	.02
Catalpo (fact.)	lb.	.02 @	—
Chalk	lb.	.02½ @	.04½
Clay, China, domestic	ton	8.00 @	9.00
Aerfloted Suprex	ton	9.00 @	20.00
Blue Ridge, Dark	ton	9.00 @	—
" " Light	ton	12.00 @	—
Dixie	ton	15.00 @	30.00
Langford	ton	12.00 @	22.00
Mineral Flour, c. l. fob mine	ton	20.00 @	23.00
Tensulite		15.00 @	—
Glues, extra white	lb.	.20 @	.29
medium white	lb.	.19 @	.25
common bone	lb.	.14 @	.15
Graphite flake, bbls.	lb.	.06½ @	.10
Magnesia, carbonate	lb.	.08 @	.09
Mica, powdered	ton	65.00 @	80.00
Rotton Sone (powdered)	lb.	.02½ @	.04½
Soapstone, powdered	ton	15.00 @	22.00
Starch, powdered	cwt.	3.30 @	3.70
Talc, domestic	ton	16.00 @	18.00
Terra Alba	cwt.	1.15 @	1.75
Tripoli, white	lb.	.01¾ @	.02
Whiting, commercial	cwt.	.85 @	1.00
English cliffstone	cwt.	1.50 @	—
Quaker	ton	13.00 @	15.00
Superfine	ton	10.00 @	12.00
Sussex	ton	8.00 @	10.00
Vansulite	ton	12.50 @	—
Wood pulp XXX	ton	45.00 @	—
" " X	ton	25.00 @	—

MINERAL RUBBER

Genasco (factory)	ton	50.00 @	52.00
Granulated M.R.	ton	33.00 @	38.00
Hydrocarbon, Hard	ton	28.00 @	34.00
Hydrocarbon, Soft	ton	28.00 @	34.00
320/340 M.P. hydrocarbon (c. l. factory)	ton	47.00 @	52.00
300/310 M.P. hydrocarbon (c. l. factory)	ton	42.00 @	47.00
Paradura	ton	70.00 @	72.50
Robertson, MR, solid	ton	35.00 @	75.00
M.R. (gran)	ton	42.00 @	80.00

SOFTENERS

Acids

Nitric, 36 degrees	cwt.	5.00 @	5.25
Sulphuric, 60 degrees	ton	10.50 @	11.50
66 degrees	ton	15.00 @	16.00
Tartaric, crystals	lb.	.30½ @	—

Acids, Fatty

Stearex	lb.	.10 @	.14
Stearic, single pressed	lb.	.10 @	.11
double pressed	lb.	.12 @	.13
triple pressed	lb.	.14 @	.15

Alkalies

Caustic soda, 76%	cwt.	3.10 @	—
Soda ash, 58% C.L.	cwt.	1.37½ @	1.40

Oils

Castor, No. 3 bbls.	lb.	.13 @	—
Corn, crude, bbls.	lb.	.10 @	—
refined	lb.	.11 @	—
Cottonseed, crude		.07¾ @	.08
Cycline	gal.	.26 @	.34
Fluxrite	lb.	.05 @	.06
Glycerine C.P. drums	lb.	.29 @	.30
Linseed, Raw C.L. bbl.	lb.	.09¾ @	.10
Moldrite	lb.	.05 @	.06
Palm Lagos	lb.	.08⅝ @	.08¾
Niger	lb.	.08⅛ @	.08¼
Vansulol	lb.	.10½ @	—
Peanut, domestic, crude	lb.	.11 @	—
Petrolatum, white	lb.	.08⅞ @	.09
amber	lb.	.03¾ @	.04
dark amber	lb.	.03¾ @	.03½
Pine, steam distilled	lb.	.70 @	.72
Rapeseed, refined	gal.	.76 @	.82
Rosin, first rectified	gal.	.70 @	—
second rectified	gal.	.73 @	—
Synthecite	lb.	.06 @	—

Resins and Pitches

Pitch, Burgundy	lb.	.06½ @	.07½
coal tar	gal.	.05½ @	.06
pine	bbl.	9.00 @	10.00
Rosin, grade K	bbl.	14.60 @	—
Pigmentar	gal.	.38 @	.41
Tar Retort	bbl.	15.50 @	16.00
kiln burned	bbl.	16.00 @	16.50

Solvents

Acetone, pure	lb.	.12 @	—
Alcohol denatured, No. 1 bbls.	gal.	.38 @	.42
Benzol, 90%	gal.	.24 @	—
pure		.27 @	—
Carbon bisulphide	lb.	.05½ @	.06¼
Carbon tetrachloride		.06¾ @	—
Motor gasoline, steel bbls.	gal.	.22 @	—
Naptha, V. M. & P.	gal.	.16¾ @	—
Turpentine, spirits	gal.	.79 @	.80
wood	gal.	.74 @	.76

Waxes

Beeswax	lb.	.40 @	.41
Carnauba, No. 1	lb.	.60 @	61
Ceresin, white	lb.	.10 @	.11
Montan, crude	lb.	.06 @	.06½
Ozokerite, black	lb.	.24 @	.25
green	lb.	.26 @	.30

ANTI-OXIDANTS

Age-Rite	lb.	.85 @	.90
Antox	lb.	.88 @	—
VGB	lb.	.66 @	—

SUBSTITUTES

Black	lb.	.08 @	.14
White	lb.	.10 @	.16
Brown	lb.	.10 @	.15

VULCANIZING INGREDIENTS

Ethyl Chloride, Cyl.	lb.	.55 @	—
" " Drums	lb.	.45 @	—
Sulphur Chloride (drums)	lb.	.04 @	.05
Sulphur flour			
Superfine, bags	cwt.	2.20 @	2.80
" bbls.	cwt.	2.55 @	3.10
100% pure, refined, bags	cwt.	2.60 @	3.15
bbls.	cwt.	2.95 @	3.50

NEW ENGLAND SOUTHERN MILLS

MANUFACTURERS OF TIRE FABRICS

This group of Mills is thoroughly equipped to produce coarse builders, breakers and chafers in all grades of cotton, in yarn numbers ranging from 4's to 30's in order to meet the demand for coarser yarns and lower cost fabrics.

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GUAYULE RUBBER

Washed and dry, ready for compounding. Invaluable in conjunction with Plantation Rubbers and Reclaims as an aid in Compounding. Especially useful in all Friction Stocks.

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RECLAIMED RUBBERS

UNIFORM RED BLACK GREY RELIABLE

THE DEFIANCE RUBBER COMPANY

DEFIANCE, OHIO

THE

GENERAL

CORD TIRE

—goes a long way to make friends

BUILT IN AKRON, OHIO, BY THE GENERAL TIRE & RUBBER CO.

Demand for Tire Fabrics Much Improved

Fabric Mills Have Shown Little Inclination to Secure Orders at the Expense of Concessions—Raw Cotton Quotations Firm

NEW YORK, Feb. 17, 1927—The demand for tire fabrics continued to improve during the last two weeks, and although factors received a considerable quantity of filling-in orders, quite a few tire factories placed orders for second quarter requirements. Such action was prompted partly by firm tire fabric prices and the continued strength of raw cotton quotations, and partly by increased tire production schedules. In some instances, inquiries were received for deliveries up to September, but buyers were not ready in all cases to pay the premiums on far forward orders.

Mills showed little inclination to get business at the expense of concessions on large orders. In a few cases on orders for small lots when inquiries came from old customers compromises were reached, but offers under the market from new customers met firm refusals.

Leading factors are of the opinion that buyers who have already covered their requirements for the full year have acted wisely, as they expect a high tire fabric market later in the year.

Full breaking constructions of the 23/5/3 variety have been in the best demand this season, with 13/3/3 second in importance. Both these constructions are used in balloon tires, but 13/3/3 is used in the cheaper lines. A few factories were in the market for constructions with lower breaking strengths.

Most of the tire fabric mills have been working on good production schedules, but it is expected that they will be close to capacity in the next quarter.

Cotton Benefited by Bill

The advancing trend of cotton during the past fortnight was attributed by leading cotton brokers to indications that the McNary-Haugen farm relief bill would be passed by both Senate and House. The effect of the proposed legislation was to bring about much short covering, to stimulate outside interest on the bull side, to promote an active demand for spot cotton and to encourage holders of all grades to maintain a firm attitude with regard to the price at which they would make sales.

Exports so far this season total 6,952,488 bales against 5,616,428 a year ago and shipments are expected to continue on a scale that will bring the season's total into close comparison with 1911-1912 which had the largest exports on record—10,682,000 bales.

According to A. Norden & Co., more finished goods were sold and more forward orders booked by the New England mills in the last two weeks in January than in any fortnight of the past three years. As stocks are low, a good demand for raw materials during the remainder of the season seems assured. Most of the southern mills are working at capacity, but there does not seem to be any accumulation of finished goods.

The scarcity of contracts in the future markets was attributed not only to factors mentioned above, but also to the existence of a large short hedge interest, which was gradually being covered as actual cotton was sold, and to the fact that spot firms sought to protect themselves by purchases of the distant positions. Trade interests, although reluctant to follow advances, appeared eager to add to their contract holdings on slight recessions.

Sheetings

During the past two weeks the market for sheetings has been marked by a much better tone. Demand for some constructions has been so good that these have become scarce for spot and nearby deliveries. Quotations have been firm, and a few have shown some tendency to advance. Some of the mills received inquiries for numbers on which they were already sold up, but forward commitments did not interest buyers.

Ducks

Demand for cotton ducks was very much improved during the past fortnight, and some mills reported that they are almost entirely sold ahead for the next two months. On certain constructions buyers were not able to obtain spot and nearby deliveries. Many small orders were placed with jobbers and the latter came into the primary market on a scale that was highly satisfactory to the mills.

Current COTTON and FABRIC *Quotations*

COTTON CLOSING PRICES

	Open	High	Low	Close Feb. 17	Close Feb. 3
March	13.79	13.86	13.17	13.86	13.48
May	14.00	14.09	13.99	14.08	13.69
July	14.22	14.30	14.21	14.29	13.89
October	14.45	14.52	14.43	14.52	14.09
December	14.61	14.66	14.60	14.66	14.26

TIRE FABRICS

CORD			
Peeler, carded, 23/5/3	lb.	.35½ @	.36½
Peeler, carded, 23/4/3	lb.	.37 @	.37½
Peeler, carded, 13/3/3	lb.	.33 @	.34
Peeler, carded, 15/3/3	lb.	.34 @	.35
Egyptian, carded, 23/5/3	lb.	.42 @	.43
Egyptian, combed, 23/5/3	lb.	.47 @	.48
CHAFERS			
Carded American, 8 oz.	lb.	.34 @	.35
Carded American, 10 oz.	lb.	.34½ @	.35½
Carded American, 12 oz.	lb.	.35 @	.36
Carded American, 14 oz.	lb.	.36 @	.36½
LENO BREAKER			
Carded American, 8¼ oz.	lb.	.34 @	.35
Carded American, 10¼ oz.	lb.	.36 @	.36½
SQUARE WOVEN			
Carded American, 17¼ oz. 23-11 ply	lb.	.36½ @	.37½
Carded American, 17¼ oz. 10-5 ply	lb.	.33 @	.34

SHEETINGS

40-inch 2.50-yard	yd.	.11 @	.11¼
40-inch 2.85-yard	yd.	.10 @	.10¾
40-inch 3.15-yard	yd.	.10½ @	—
40-inch 3.60-yard	yd.	.09 @	—
40-inch 3.75-yard	yd.	.07⅞ @	.08
40-inch 4.25-yard	yd.	.07 @	—

DUCKS

Belting and Hose	lb.	.28 @	.28½
Enameling	lb.	.29 @	.34
Sl.oe Ducks	lb.	.29½ @	.33½
Single filling	lb.	.11½ @	.14½
Double filling	lb.	.14½ @	.16

J. H. LANE & CO.

Tire Fabrics Cord Fabrics

Enameling Duck Drill Sheeting

Osnaburg and Special Constructions

250 W. 57 Street, NEW YORK 323 South Franklin St.. CHICAGO

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the most successful crude rubber auxiliary ever devised, because of its universal adaptation to compounds of various physical and color requirements. After four years, Bison still remains the one outstanding innovation in the reclaiming art.

NOW we offer to the Industry a reclaim with greater strength and stretch — higher even than BISON, and we have aptly named it

HERCULES

Tensile 1750 Lbs. Per Sq. Inch—Elongation 2″ to 14″

HERCULES is dark in color, and particularly suitable for dark compounds, while BISON is adaptable to vari-colored compounds.

Try a trial ton of HERCULES, and note its Rubber-like "Squeal" and action when milling. ITS LOW LAST COST WILL ASTONISH YOU.

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44 years Serving the Industry — Solely as Rubber Reclaimers

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STATISTICAL SECTION

TIRES & TUBES
CRUDE RUBBER

AUTOMOBILES
GASOLINE

SEVERAL CHANGES are made in the statistical section in this issue which are expected to add to its value. Statistics on some new subjects are included, such as rubber invoiced to the United States each week, daily cotton prices, stocks of rubber in Singapore and Penang, and rims inspected and passed. All of these are of direct interest throughout the industry. These tables will be continued in each issue and brought up-to-date, when new data becomes available, just as has been done with all the tables in the past. None of the old tables are being dropped but some of them have been rearranged to be still more valuable.

Rubber consumption in the United States will hereafter be reported both

(Continued on Third Column)

PLAN OF THE SECTION

The statistics included in this section have been chosen for their constant importance to the rubber industry. The tables are reprinted in the same relative position in every issue, each table being kept current by the addition of new figures as soon as they become available. The section accordingly affords the most up-to-date, complete and convenient statistical date statistical service in the industry.

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Rubber Exports from Producing Countries
Rubber Imports into Consuming Countries

by months and quarters since two sets of figures are issued by the Rubber Association to cover those periods. There are some discrepancies between the monthly and quarterly data which may be due to an error in the Association's estimates of completeness, or may arise from the constant changes in the companies contributing data to the Association's compilations. January consumption figures have become available, showing an increase of 5,200 tons over December.

The London stock figures will hereafter be shown on a weekly basis as well as by months, the monthly figures being too slow to reflect the rapid changes. The London stocks continue to increase, having reached 56,939 tons on the second Saturday in February.

U. S. Imports and Exports of Crude Rubber.

	Gross Imports			Re-exports			Net Imports
YEARS	Long Tons	Total Declared Value	Average Declared Value per pound Cents	Long Tons	Total Declared Value	Average Declared Value per pound Cents	Long Tons
1921	185,394	73,772,677	17.76	5,716	2,414,924	18.86	179,678
1922	301,076	101,843,188	15.10	4,809	1,921,828	17.84	296,267
1923	309,144	185,060,304	26.72	8,772	5,672,319	28.87	300,372
1924	328,056	174,231,331	23.71	10,309	6,057,687	26.23	317,747
1925	396,642	429,705,014	48.36	14,827	19,847,753	59.76	381,815
1925:							
Jan.	32,898	22,406,756	30.41	1,162	963,593	37.02	31,736
Feb.	24,696	18,532,115	33.50	979	779,406	35.53	23,717
Mar.	33,073	25,146,691	33.94	1,345	1,105,119	36.69	31,727
Apr.	32,506	24,874,562	34.16	1,130	1,009,305	39.86	31,376
May	36,932	30,311,754	36.64	1,203	1,323,445	49.12	35,729
June	31,569	26,855,883	37.98	1,198	1,577,106	58.75	30,371
July	32,455	33,701,723	46.36	1,278	2,132,681	74.52	31,177
Aug.	33,412	29,834,348	53.22	1,131	1,623,258	64.08	32,281
Sept.	26,367	36,686,013	62.11	1,154	1,820,360	70.41	25,213
Oct.	34,651	50,027,338	64.45	1,132	1,989,291	78.48	33,519
Nov.	37,755	56,271,963	66.54	1,605	2,898,930	80.65	36,150
Dec.	40,329	65,055,868	72.03	1,510	2,625,259	77.61	38,819
	396,642	429,705,014	48.36	14,827	19,847,753	59.76	381,815
1926:							
Jan.	42,404	72,528,151	76.36	2,084	3,747,505	80.28	40,320
Feb.	32,865	58,733,370	79.78	1,430	2,280,168	71.17	31,435
Mar.	42,152	70,589,581	74.76	1,836	2,735,234	66.51	40,316
Apr.	34,544	48,742,539	62.99	1,128	1,605,093	63.58	33,416
May	29,756	36,896,080	55.35	1,052	1,558,987	66.17	28,704
June	24,900	34,498,561	61.85	1,105	1,371,217	55.41	23,795
July	35,820	33,061,470	41.20	1,554	1,743,854	50.09	34,266
Aug.	27,400	24,670,752	40.21	1,318	1,339,563	45.38	26,082
Sept.	37,112	32,625,082	39.02	1,437	1,519,870	47.20	35,675
Oct.	29,333	25,300,483	38.50	1,366	1,316,270	43.02	27,967
Nov.	38,925	34,661,631	39.97	1,482	1,320,461	42.00	37,443
Dec.	37,754	33,261,366	39.33	1,904	1,841,305	43.16	35,850
	413,338	505,817,807	54.63	17,671	22,470,583	56.77	395,667
1927:							
Jan.	45,736*						

*Unofficial preliminary figure of Rubber Association.

U. S. Consumption of Crude Rubber

(Rubber Association of America statistics raised to 100 per cent—All figures in long tons)

	Figures on Quarterly Basis						
	1921	1922	1923	1924	1925	1926	1927
January	5,045	16,938	30,106	29,058	29,638	32,196	31,518
February	5,955	14,767	30,149	25,736	29,761	31,136	
March	9,190	21,408	36,629	28,385	33,498	32,936	
April	13,084	19,294	29,085	27,129	34,139	32,696	
May	16,023	23,246	36,155	25,845	35,322	29,364	
June	16,142	31,713	24,272	22,753	35,822	28,598	
July	18,310	24,522	17,685	23,396	36,053	27,577	
August	23,649	29,361	20,359	28,982	35,909	34,533	
September	16,705	24,410	17,594	31,497	31,691	32,904	
October	16,814	26,881	21,321	31,520	29,047	29,836	
November	14,105	24,950	20,437	27,289	28,853	28,080	
December	15,482	25,070	21,902	27,199	28,748	26,293	
TOTALS	170,504	282,560	305,694	328,769	388,481	366,149	

	Figures on Monthly Basis					
Quarter	1921	1922	1923	1924	1925	1926
Jan./Mar.	65,463	127,360	96,776	87,609	95,263	94,301
Apr./Jun.			89,493	75,674	104,099	87,109
Jul./Sept.	105,962	155,067	55,621	83,813	99,493	93,793
Oct./Dec.			63,617	92,656	85,789	83,212
Total	171,425	282,427	305,507	339,752	384,644	358,415

Note: The Rubber Association estimates its monthly rubber consumption figures to be 90% complete. Up until 1925 the quarterly figures were likewise estimated to be 90% complete; beginning with 1925 an estimate of 92% completeness has been used. These estimates have been used in raising the figures in this table to 100%. The quarterly figures are generally regarded as the most authentic; the monthly figures may be accepted as preliminary.

Rubber Invoiced to the U. S.

(Reported by American Consuls—Quantities in Long Tons)

During the Week Ended	From Br. Malaya	From Ceylon	From Dutch East Indies	From London & Liverpool	Total
Dec. 11, 1926	5,784	1,267	872	45	7,968
Dec. 18	6,505	703	757	50	8,015
Dec. 25	4,468	1,227	1,142	80	6,917
Jan. 1, 1927	4,082	690	1,901	55	6,728
Jan. 8	5,229	1,004	1,337	34	7,604
Jan. 15	6,698	737	1,488	96	9,019
Jan. 22	4,117	1,756	1,508	239	7,620
Jan. 29	6,819	1,080	1,349	197	9,445
Feb. 5	3,187	1,001	1,147	150	5,485
Feb. 12	4,414	327	1,412	153	6,306

Daily Spot Closing Prices of Ribbed Smoked Sheet Rubber—*New York Market, in Cents per Pound*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31 Average
1925 Jan.		39¾	39¾	—	39		39¾	38½	38¾	38¾		37¾	36½	36¾	85	85	35¾		34¾	34¾	35	35½	36¾	36½	35¾	35¾	35¾	35¾		35¾
Feb.		35¾	34¾	34½	34½	34¾	35¾		35¾	34¾	35¾		35½	36		36¾	36¾		36½	36¾	36		37¾	37¾		37½	38¾			36
Mar.		38¾	38¾	38½	38¾	39¾	39¾		39¾	40¼	40¾		40½	40½		40¾	40½		41¾	41¼	41¾		43½	43¾		43½	43¾			41
Apr.	41¼	41¾	41¼	41¾		42⅛	42¼	43¼								44¼		44¼		44	44½		43¾	42½	43¾		44¾		44¼	43¾
May	45	45⅝		47¼	46⅞	48⅜	50½	53½	55½	59	59	57	59¾	60¾	60¾	64¼	71⅝	72⅝		75¼	76¼	60⅝	61⅞	65	63¾	63¾	65⅞	69½	45¾	45¾	58½
June	69½	72	74¾	76½	75¾			74⅞	73⅜	74	75¼	76⅜	74⅞			71⅝	74⅞	73⅜	75½	76¼		79¾	83½	85⅜	87	89⅞	85⅝	82⅝	82⅝	77¼
July	81⅜	81⅞	85½		85⅜	88⅜	90½	95⅜	94⅜	99⅜	106⅞	76½	110	105⅝	110⅝	117	116¾	118⅜	80½	83½	121	117⅛	119	117⅝	112¼		107⅞	96⅜	93¾	103¼
Aug.	94½	95½	88¾	81¼	85¾	86¾	81¾	79	78¾	71¾	72¾	86⅜	92		93½	93⅜	92¾	92¾	94¾		92	82½	82½	82½	85⅜	85¼	85¼	89¾	90	88⅞
Sept.	88¾	85	87¼	92	81¼	97	97½		99	101	86½	92	97	93½	97	99¼	99	107	99	101¼	102	93¾	93½	90	89	89	85¼	91½	91½	88⅞
Oct.	91¼	94¼	97¼		94½	100	100¾		98¾	99½	100¾	101½	104½	105½	99¼	90¼	93	107	109¾	110¾	110½	99¼	99¼	109	106¼	98	99¼	100¾	100¼	98
Nov.	—	99¾	107¼	108¼		108	109	109¾	106	105½	105½	105½	—	101				88¼	86¾	—	88¼	90¼	88¾	88¾	88¾	—	107	91¼	91¼	104¾
Dec.	106¾	108½	107¾	107¾	108¼																									98½
1926 Jan.																														
Feb.		67	67⅛	66¼	66¾	69	66¼	69	67	65	66	63	61½	60½	60½	60½	60½	60½	60½	60½	60½	60½	60½	60½	60½	60½	60½	60½	60½	60½
Mar.	55	58	53	53¾	53¾	57⅛	56	56	55½	53	60	63	61½	62	60½	60½	61	62	61½	61½	61	61½	61½	61½	61½	61½	61½	61½	61½	61½
Apr.	59		59		59	58	56½	56½	53	61	60	51⅝	50⅝	49¾	48⅝	48⅝	47	47	47	48½	47½	47½	48½	48½	48½	48½	48½	48½	48½	48½
May	48¼		50	50¾	49¼	49¾	49¾	49½	53	49	49¾	49	48¾	49¾	47¾	47¾	47	47	47	47¾	47¾	47¾	46¾	46	46	46	46	46	46	46
June	41¾	42	41¼	42	41¾		41¾	42	43	42	41¾	41½	41	42	43½	43	43	44	43	44	44	43½	43½	43½	43½	43½	43½	43½	43½	43½
July	42	42	42	41¾	41½	41¾	41½	41½	41½	41½	41½	37½	37½	38½	40	40	40	40	40	41	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½
Aug.		42	38¾	38¾		37	38¾	39	38¾	37¾	37¾			40½	38½	40½	40½	40½	40½	39	41	41½	39½	39	39	41½	39½	39½	39½	38½
Sept.	40¼	40¼	40¾				40¾	40¾	40¾	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40½	40½	42⅜	41¼	42½	42¼	42	39	39	42¼	42½	42½	40	41
Oct.	43				43¼	42¾	42½	42½	42½	42¾	42¾	41¼	41½	42¾	43	43	43	43	42½	42½	42½	42½	42½	42½	42½	42½	42½	42½	42½	42½	42½
Nov.	41¼		41		41¼	41½	41½	41½	41½	42¾	41¼	41¼	41¼	41¼	40¾	40¾	40½	40½	40½	39	38	38	38	38	42½	42½	42½	42½	37	38½
Dec.	36¾	37½	37½	37½	37½		37	37	37½	37	37½	37½	37½	37½	37¾	38	38	38	38	38	38¼	38½	38½	39	—	—	39	38½	38¾	38½
1927 Jan.																														
Feb.		37¾	37¾	37¾	37½		37¾	37¾	37¾	38	40¾	40¾	40¾	40¾	39¾	38	39¼	38¾	39	38¾	38¾	38¾	38¾	38¾	38	38	38	38	38	38
Mar.																														
Apr.																														
May																														
June																														
July																														
Aug.																														
Sept.																														
Oct.																														
Nov.																														
Dec.																														

Average Spot Closing Prices--Ribbed Smoked Sheets

(New York Market)

Average Price per Pound for Years 1910-1920

Year	Cents	Year	Cents	Year	Cents
1910	206.60	1914	65.33	1918	60.15
1911	141.30	1915	65.85	1919	48.70
1912	121.60	1916	72.50	1920	36.30
1913	82.04	1917	72.23	1921	16.36

Average Monthly Price per Pound since 1921

Months	1922 Cents	1923 Cents	1924 Cents	1925 Cents	1926 Cents	1927 Cents
Jan.	18.82	32.73	25.86	36.71	79.50	38.75
Feb.	16.12	35.14	25.29	36.01	62.25	
Mar.	14.53	34.21	22.83	41.00	59.00	
Apr.	15.99	32.48	22.51	43.64	51.25	
May	15.25	27.39	19.89	58.47	47.75	
June	15.11	26.88	18.81	77.26	42.50	
July	14.67	26.10	22.16	103.16	41.03	
Aug.	13.93	28.84	26.17	82.99	38.50	
Sept.	14.44	28.95	27.56	88.88	41.00	
Oct.	19.78	26.93	31.13	98.01	42.50	
Nov.	23.88	27.14	34.33	104.80	38.50	
Dec.	27.42	26.60	37.88	98.51	38.25	
Average for Year	17.50	29.45	26.20	72.46	48.50	

London Closing Prices of Ribbed Smoked Sheet

(In pence per pound)

Fifth Restriction Year—Second Quarter

Day	Feb.	March	April	Day	Feb.	March	April
1	18⅞			16	18⅞		
2	18¾			17	19		
3	18⅝			18	19¼		
4	18¾			19			
5	18¾			20			
6	—			21			
7	18⅞			22			
8	18¾			23			
9	18⅞			24			
10	18⅞			25			
11	18¾			26			
12	18⅞			27			
13	—			28			
14	19			29			
15	19			30			
				31			

(The average price for the period for which daily prices are reported above is approximately 18.875 pence. The British Colonial Secretary has announced that only 60% of the standard production will be exportable from the restricted area during the next quarter if the price during the entire current quarter does not average at least 21 pence.)

Average Price in Previous Quarters

Quarter	1922-23	1923-24	1924-25	1925-26	1926-27
Nov.-Jan.	14.285	14.175	17.9983	46.709	19.265
Feb.-Apr.	16.858	12.917	19.356	28.103	
May-June	14.242	10.974	38.469	21.001	
Aug.-Oct.	14.944	14.632	43.269	20.199	

Spot Closing Cotton Prices

(Middling Upland Grade—New York Market)

Recent Daily Price Per Pound

Day of Month	Jan. Cents	Feb. Cents	Day of Month	Jan. Cents	Feb. Cents	Day of Month	Jan. Cents	Feb. Cents
1	——	13.65	11	13.35	14.10	21	13.60	
2	——	13.70	12	13.50	——	22	13.70	
3	12.80	13.80	13	13.40	——	23	——	
4	13.00	14.00	14	13.50	14.00	24	13.65	
5	12.95	14.15	15	13.55	14.20	25	13.65	
6	13.00	——	16	——	14.10	26	13.50	
7	13.10	14.00	17	13.55	14.15	27	13.50	
8	13.15	14.15	18	13.65	14.20	28	13.70	
9	——	14.25	19	13.60		29	13.65	
10	13.30	14.15	20	13.60		30	——	
						31	13.55	

Average Monthly Price Per Pound

Month	1925 Cents	1926 Cents	1927 Cents	Month	1925 Cents	1926 Cents	1927 Cents
Jan.	23.99	20.85	13.42	Aug.	23.72	18.57	
Feb.	24.70	20.60		Sept.	23.79	17.02	
Mar.	25.64	19.35		Oct.	21.77	13.14	
Apr.	24.54	19.13		Nov.	20.94	12.86	
May	23.41	18.92		Dec.	20.06	12.68	
June	24.13	18.57		Average for Year	23.45	17.53	
July	24.68	18.71					

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THE MARKET PLACE Section Continued on Second Page Following.

Stock of Crude Rubber in the U. S.

(All Quantities in Long Tons)

At End of	ON HAND			AFLOAT			ON HAND AND AFLOAT		
	1925	1926	1927	1925	1926	1927	1925	1926	1927
Jan.	60,870	55,198	76,172	36,759	46,296	45,312	97,629	100,434	121,484
Feb.	54,109	58,035		41,475	46,935		95,584	104,970	
Mar.	52,494	61,822		40,577	43,567		93,071	105,389	
Apr.	50,143	55,261		53,465	41,905		103,608	97,166	
May	52,064	64,360		46,846	40,303		98,910	104,663	
June	50,997	60,460		51,202	40,907		102,199	101,367	
July	46,245	64,900		46,003	38,062		92,248	102,962	
Aug.	42,354	60,870		41,254	37,360		83,608	98,230	
Sept.	36,367	62,078		55,151	42,464		91,518	105,542	
Oct.	34,085	64,989		51,098	52,930		85,183	117,919	
Nov.	34,885	69,385		42,692	47,311		86,577	116,696	
Dec.	51,215	72,520		48,208	52,020		99,423	124,540	

(Rubber Association of America figures raised to 100%.)

Stock of Crude Rubber in London

(No. of tons in Wharves and Warehouses, including Latex)

At End of:	1920	1921	1922	1923	1924	1925	1926
January	10,300	56,573	67,252	73,498	57,460	27,172	9,994
February	18,329	59,439	67,623	70,483	56,732	23,425	10,004
March	18,969	63,913	66,670	63,438	55,647	18,104	13,750
April	20,072	68,759	68,637	58,770	54,559	12,949	18,951
May	20,921	70,403	70,146	54,439	51,615	5,895	20,896
June	22,517	69,408	71,597	51,050	51,115	5,318	23,894
July	25,346	71,065	71,515	49,937	52,073	4,258	27,727
August	30,674	73,211	72,112	48,427	49,700	4,619	30,764
September	35,504	72,175	70,977	54,523	44,011	5,453	35,077
October	41,743	69,229	68,536	58,891	37,523	5,086	42,141
November	45,550	70,786	68,548	60,074	33,593	3,869	44,057
December	50,652	69,792	72,299	60,246	29,488	5,697	48,921

At End of Recent Weeks

1926	First Saturday	Second Saturday	Third Saturday	Fourth Saturday	Fifth Saturday
July	25,063	26,063	26,732	27,860	27,766
August	27,972	29,313	29,678	30,159	——
September	30,764	32,011	33,249	34,587	——
October	36,065	37,226	39,650	41,080	42,141
November	43,045	43,299	44,553	43,859	——
December	44,395	46,349	47,324	48,382	——
1927					
January	48,948	50,756	52,484	53,662	54,786
February	55,740	56,939			

Rubber in Singapore and Penang

(Stocks held by Dealers—Quantities in Long Tons)

End of	1925	1926	1927	End of	1925	1926	1927
Jan.	15,925	15,726		July	15,894	23,101	
Feb.	17,320	13,653		Aug.	17,251	23,362	
Mar.	17,261	18,389		Sept.	16,526	25,997	
Apr.	15,368	16,328		Oct.	15,346	26,614	
May	15,804	16,967		Nov.	19,788	25,486	
June	15,884	19,416		Dec.	18,840	26,443	

Rims Inspected and Passed in U. S.

(Tire & Rim Association Reports)

	Total	Per Cent Balloons		Total	Per Cent Balloons
1923	23,140,620	0.6	1925	25,997,849	66.8
1924	21,863,720	19.7	1926	24,199,613	78.8
1926			1927		
July	2,123,368	84.8	January	1,489,078	77.0
August	2,378,850	82.3	February		
September	2,365,518	80.7	March		
October	1,828,539	76.9	April		
November	1,210,472	77.0	May		
December	1,096,429	76.7	June		

U. S. Consumption of Gasoline

(Gallons)

MONTHS:	1923	1924	1925	1926
January	456,967,163	500,420,689	595,413,000	720,358,000
February	380,093,070	402,703,876	543,640,000	650,718,000
March	446,460,208	467,181,088	625,053,000	779,571,000
April	485,716,788	607,175,026	798,305,000	831,410,000
May	582,535,781	672,495,321	841,787,000	989,857,000
June	633,504,590	682,409,140	868,350,000	969,051,000
July	674,019,467	789,666,590	963,071,000	1,014,804,000
August	692,154,000	828,057,347	931,901,000	1,103,844,000
September	655,797,616	718,068,623	848,867,000	942,858,000
October	621,172,668	751,499,199	831,774,000	986,496,000
November	538,308,809	698,359,199	757,744,000	850,122,000
December	518,305,120	657,967,000	759,699,000	900,018,000
	6,685,035,280	7,770,238,000	9,365,604,000	10,739,107,000

U. S. Tire and Tube Statistics.

(All Figures Represent Thousands)

AUTOMOBILE CASINGS

Figures for Recent Years

	1922	1923	1924	1925	1926
Production	40,932	45,259	51,633	60,845	61,237
Shipments	39,987	45,204	50,120	59,262	59,002
Inventory[2]	6,132	5,772	7,427	8,142	10,456

Figures for Recent Months

	PRODUCTION		SHIPMENTS		INVENTORY	
	1925	1926	1925	1926	1925	1926
Jan.	4,740	4,587	4,013	2,974	7,949	9,947
Feb.	4,908	4,865	3,924	3,436	8,928	11,164
Mar.	5,276	5,456	4,657	4,561	9,510	12,004
Apr.	5,341	5,346	5,498	4,980	9,088	12,461
May	5,467	5,023	5,954	5,211	8,611	12,343
June	5,418	5,422	6,737	5,724	7,243	11,968
July	5,587	4,950	6,298	6,337	6,421	10,592
Aug.	5,607	5,872	4,760	6,744	7,261	9,732
Sept.	5,007	5,706	4,569	6,040	7,681	9,318
Oct.	4,505	5,103	5,580	4,544	6,670	9,917
Nov.	4,229	4,324	3,671	3,733	6,955	10,297
Dec.	4,760	4,683	3,601	4,718	8,142	10,456

AUTOMOBILE INNER TUBES

Figures for Recent Years

	1922	1923	1924	1925	1926
Production	50,850	60,116	70,706	82,614	76,618
Shipments	49,673	59,072	68,016	81,004	71,591
Inventory[2]	7,643	8,425	11,052	11,313	16,200

Figures for Recent Months

	PRODUCTION		SHIPMENTS		INVENTORY	
	1925	1926	1925	1926	1925	1926
Jan.	6,343	6,809	5,576	3,723	11,570	14,361
Feb.	6,339	6,825	4,971	3,736	13,023	17,090
Mar.	7,000	7,030	5,711	4,987	14,236	19,131
Apr.	6,851	6,554	6,704	5,051	13,618	20,674
May	6,846	6,149	8,040	6,304	12,501	21,141
June	6,942	6,171	9,032	6,898	10,409	20,243
July	7,544	5,729	9,140	8,569	8,635	17,267
Aug.	7,618	7,424	6,923	9,579	9,271	15,462
Sept.	7,254	7,590	6,665	7,762	9,950	15,312
Oct.	6,612	6,208	7,845	5,474	8,726	15,929
Nov.	6,266	4,852	5,406	4,045	9,491	16,604
Dec.	6,999	5,277	4,991	5,463	11,313	16,200

(1) Rubber Association of America figures, raised to 100%. The Association estimates its figures to be 75% representative or complete when issued and that basis has been accepted when preparing the statistics in this table.

(2) Held by manufacturers at end of period indicated.

Automobile Production

	Passenger Cars			Trucks		
	Total	United States	Canada	Total	United States	Canada
1920	1,883,158	1,799,522	83,636	322,039	311,531	10,508
1921	1,514,000	1,452,902	61,098	147,550	142,402	5,148
1922	2,397,827	2,302,923	94,904	251,434	244,285	7,149
1923	3,719,164	3,589,936	129,228	378,288	361,078	17,210
1924	3,262,764	3,144,999	117,765	378,106	360,625	17,481
1925						
January	212,921	204,620	8,301	28,198	26,633	1,565
February	252,803	242,024	10,779	34,467	32,774	1,693
March	332,154	319,140	13,014	45,168	43,079	2,089
April	391,302	375,787	15,515	47,898	46,322	1,576
May	382,714	364,363	18,351	43,380	41,492	1,888
June	364,806	350,557	14,249	38,141	36,347	1,794
July	358,554	347,414	11,140	41,915	40,070	1,845
August	221,831	214,401	7,430	37,843	36,357	1,486
September	272,425	262,053	10,372	60,452	57,972	2,480
October	406,572	392,651	13,921	46,003	44,309	1,694
November	336,358	327,617	8,741	40,077	37,840	2,237
December	285,199	277,701	7,498	34,477	32,746	1,731
Total	3,817,639	3,678,328	139,311	498,019	475,941	22,078
1926*						
January	284,703	272,922	11,781	33,461	29,763	3,698
February	334,524	319,763	14,761	41,685	37,608	4,077
March	399,105	381,116	17,989	49,233	44,848	4,385
April	401,836	383,907	17,929	53,887	50,314	3,573
May	394,569	373,140	21,429	51,343	47,838	3,505
June	358,360	339,542	18,818	47,043	44,110	2,933
July	328,816	315,863	12,953	41,847	39,592	2,255
August	393,040	380,258	12,782	47,907	45,404	2,503
September	363,537	350,913	12,624	51,299	46,428	4,871
October	300,142	289,547	10,595	49,965	42,890	7,075
November	*226,278	*219,504	6,774	*39,410	*36,356	3,054
December	143,413	137,361	6,052	30,002	28,302	1,700

*Revised Figures

ALL THE LEADERS

Are represented in this section. Purchasing agents can rely on the concerns listed as thoroughly reliable in every way.

The Market Place

CHEMICALS — Accelerators
Trimene Base, Heptene, Monex, Crylene, Lithex, Aniline Oil.
Clay—Mineral Flour, Seminole (Georgia).
Antioxidant—VGB, a proven product.
Labels—all-rubber two color brands.
Naugatuck Chemical Co.
1790 Broadway, New York.

CHEMICALS and compounding ingredients; Clay, Whiting, Accelerators, Mineral Rubber.
R. T. Vanderbilt Co.
50 East 42nd St. New York City

CHEMICALS and Mineral Ingredients—Whiting, Clay, Talc, Barytes, Colors, Heavy Calcined Magnesia, Carbonate of Magnesia, Pumice Stone.
Standard Since 1890
Whittaker, Clark & Daniels, Inc.
245 Front St., New York

CHEMICALS and COLORS
for all classes of mixing and cure. Complete rubber laboratory service for our customers.
Wishnick-Tumpeer, Inc.
New York Chicago Cleveland Boston

CLAYS for the rubber trade.
ARGOSITE CLAY—Pulverized—Special
CONGAREE CLAY—Pulverized—Standard
United Clay Mines Corp.
General Offices – – Trenton, N. J.

CONSULT BANNER
Before You Buy
TIRE BUILDING MACHINES
The Banner Machine Co.
Columbiana, Ohio
Paul A. Frank, Akron, Ohio, Agent.

CONSULTING
Rubber Technologist
R. R. Olin Laboratories
852 Wall Street, Akron, Ohio.

CRUDE RUBBER BROKERS
Henderson Brothers Co., Inc.
60 Beaver St., New York City
Members Rubber Exchange of N. Y.

CRUDE RUBBER
Importers and Dealers
Members Rubber Exchange of N. Y. and Rubber Exchange Clearing House
Henderson, Helm & Co., Inc.
44 Beaver St., New York
Weekly Market Review on Request

CRUDE RUBBER
We Solicit Your Inquiries
H. Muehlstein & Co., Inc.
41 East 42nd. St., N. Y. City
Offices in Akron, Chicago, Boston.

CRUDE RUBBER
Importers
Members Rubber Exchange of N. Y., Inc. and Rubber Exchange Clearing House, Inc.
Charles T. Wilson Co., Inc.
82 Beaver St., New York
AKRON OFFICE: 507 Second Nat'l. B'ldg.

CUMAR—Paracumarone Resin
A neutral gum for rubber compounding.
Samples and prices on request.
The Barrett Company
40 Rector St., N. Y. City

DIPHENYLGUANIDINE
Aero Brand, product of the highest purity from dependable source of supply.
American Cyanamid Co.
511 Fifth Ave. New York City.

DRY KILN—for drying crude rubber and chemicals—Hunter Process.
Carrier Engineering Corporation
750 Frelinghuysen Ave. Newark N. J.

ENGINEERS
Machinists, Iron and Steel Founders
Standard and Special
Rubber Working Machinery
The Adamson Machine Co.
Akron, Ohio

ENGINEERS & Machinists
Cores, Chucks, Power Stands, Stock Racks, Tube MOLDS, Book Type MOLDS, Special Machinery.
DeMattia Brothers, Inc.
Clifton, New Jersey

FABRICS—Tire, cords, enameling ducks, drills, sheetings, osnaburgs.
J. H. Lane & Co.
250 West 57th St. New York City

FABRICS—Tire fabrics—coarse builders, chafers, breakers in all grades.
New England Southern Mills
LAWRENCE & CO.
24 Thomas St. New York
Boston, Philadelphia, Chicago, St. Louis, San Francisco

FACTICE—Prevents blooming, makes colors fast and a smoother batch.
Stamford Rubber Supply Co.
Stamford, Conn.

GUAYULE—"Duro" Brand washed and dried ready for compounding.
Continental Rubber Co.
120 Broadway New York

HEELS, soles and strips
We can make any special brand with your molds or with ours. Best quality at the lowest price. Consult us.
P. & B. Rubber Mfg. Co., Inc.
Laurel Hills, Long Island, N. Y.

THE MARKET PLACE Section Continued on Second Page Following.

Exports of Crude Rubber from Principal Producing Countries

(Figures in Long Tons)

	British Malaya[1]							Dutch East Indies[1]			French[1]		
	Gross Exports	*Imports*	*Net Exports*	*Ceylon*[2]	*India & Burma*[3]	*Br. North Borneo*[4]	*Siam*[4]	*Java & Madura*	*Sumatra E. Coast*	*Other D.E.I.*	*Indo-China*	*Amazon Valley*[5]	*Total*[7]
1923	252,016	70,432	181,584	37,112	6,416	5,433	1,744	1,718	32,938	44,002	57,822	5,606	19,859	394,263
1924	259,760	107,419	152,341	37,351	7,697	6,485	1,892	2,962	42,446	52,499	80,347	6,688	23,164	413,872
1925	316,825	158,022	158,803	45,684	10,082	8,460	2,308	5,378	46,643	62,678	119,271	7,881	25,307	492,495
1925:														
Jan.	19,183	10,132	9,051	3,065	1,090	605	180	404	3,053	5,097	5,858	701	1,712	30,816
Feb.	21,622	10,071	11,551	2,207	1,121	469	148	283	3,490	5,139	8,569	586	2,977	36,540
Mar.	26,836	13,399	13,437	4,201	984	756	209	437	4,583	5,499	10,807	487	2,459	43,859
Apr.	22,414	11,751	10,663	3,250	684	483	164	384	4,121	4,663	8,536	482	1,585	35,015
May	26,667	12,979	13,688	2,600	585	717	189	489	3,624	4,455	12,006	599	2,588	41,540
June	27,894	14,706	13,188	3,502	831	1,046	195	430	4,187	4,667	10,644	833	1,653	41,176
July	24,809	16,192	8,617	4,487	680	955	218	533	4,719	5,24-	10,516	411	1,142	37,522
Aug.	27,753	12,025	15,728	3,409	671	548	194	436	3,210	5,186	9,445	484	1,810	41,121
Sept.	29,425	12,913	16,512	4,758	745	766	218	533	3,364	4,913	10,628	764	2,140	45,341
Oct.	28,711	14,986	13,725	5,270	516	639	199	708	3,516	5,511	11,767	683	2,240	44,774
Nov.	31,648	14,904	16,744	3,980	1,044	838	186	411	4,657	6,349	11,958	991	2,620	49,778
Dec.	29,863	13,964	15,899	4,955	1,131	638	208	330	4,119	5,955	8,537	860	2,381	45,013
	316,825	158,022	158,803	45,684	10,082	8,460	2,308	5,378	46,643	62,678	119,271	7,881	25,307	492,495
1926:														
Jan.	30,452	10,237	20,215	4,058	1,273	416	196	288	4,397	6,277	8,081	915	1,284	47,400
Feb.	30,440	8,306	22,134	4,941	725	488	141	253	4,474	5,734	6,801	554	2,759	49,004
Mar.	35,012	14,800	20,212	5,708	1,113	792	232	418	4,865	5,612	11,880	573	2,126	53,531
Apr.	23,727	10,565	13,162	3,484	590	679	251	294	4,522	4,598	6,208	410	2,318	36,516
May	31,231	10,604	20,627	3,600	691	927	157	279	4,742	5,293	8,606	503	1,353	46,777
June	30,624	11,764	18,860	3,906	452	779	160	275	5,440	6,111	9,844	549	1,213	47,589
July	28,824	15,280	13,544	4,800	938	911	242	438	4,929	5,522	12,864	1,521	1,540	47,249
Aug.	34,625	13,595	21,030	5,246	521	890	168	316	4,418	3,472	10,349	378	1,624	48,412
Sept.	35,913	13,972	21,941	6,027	652	887	213	457	4,326	6,757	10,971	681	1,770	54,682
Oct.	39,367	15,203	24,164	6,026	635	805	271	385	4,193	6,988	11,513	661	2,067	57,708
Nov.	34,302	12,201	22,101	4,687	1,100	685	169	284	4,060	5,746	8,998	718	1,954	50,502
Dec.	36,811	14,716	22,095	6,361	1,180	894	172	338	5,026	7,106	12,333	790		
	391,328	151,243	240,085	58,844	9,870	9,153	2,372	4,025	55,392	69,216	118,448	8,252		

(1) Malayan net exports cannot be taken as Malayan production since much of the imported rubber contains a high percentge of moisture and impurities which are eliminated before it is re-exported; the Malayan figures do not contain rubber exported as latex which on the basis of 3 pounds per gallon amounted to 99 tons in 1923, 957 tons in 1924 and 3,101 tons in 1925. (2) Ceylon Chamber of Commerce statistics until 1926. (3) Official statistics. (4) Figures for Sarawak, British North Borneo and Siam are imports from these territories into Singapore through which port practically their entire production moves. (5) Exports from "Other Dutch East Indies" are chiefly native rubber which contains one-third of moisture and impurities for which no allowance has been made in the statistics; rubber shipped as latex has not been included and amounted to 6,355 tons in 1923, 2,735 tons in 1924 and 6,207 tons in 11 months of 1925. (6) Exports through Para, Manaos and Iquitos. (7) This total includes the net exports from British Malaya and all the figures shown for the other territories.

Net Imports of Crude Rubber into Principal Manufacturing Countries

(Long Tons)

	United States	*United Kingdom*	*France* (abd)	*Germany*	*Canada* (ac)	*Japan* (ac)	*Italy*	*Russia* (ce)	*Australia* (cf)	*Belgium* (d)	*Netherlands*	*Sweden* (abcd)	*Norway* (abc)	*Denmark* (abd)
1919	236,977	42,671	19,951	5,584	8,770	10,688	9,894	75	733	3,995	2,771	2,022	437	673
1920	248,762	56,844	15,868	11,890	11,912	6,015	6,123	62	1,040	3,840	5,510	1,567	241	479
1921	179,678	42,087	16,981	21,920	8,248	22,981	3,906	165	554	1,705	1,022	813	178	251
1922	296,267	11,724	27,644	27,546	9,366	16,449	6,430	2,453	2,649	172	-3,807	1,248	321	87
1923	300,372	12,700	31,067	18,519	13,299	17,181	8,489	4,506	1,631	2,184	792	1,391	448	354
1924	317,747	-11,550	34,488	22,727	14,420	19,612	8,764	824	3,127	2,688	-807	1,781	669	473
1925	381,815	4,061	36,911	33,93-	19,825	12,743	11,412	7,088	4,217	2,930	875	1,690	701	440
1925:														
January	31,736	-284	2,147	4,303	1,432	797	552	333	192	331	109	164	64	16
February	23,717	-2,492	3,529	3,690	1,278	658	908	1,000	338	275	88	136	145	37
March	31,727	-3,396	3,924	2,784	2,349	689	1,463	1,083	357	373	56	183	77	71
April	31,376	-2,961	3,069	3,574	1,397	719	817	535	314	97	181	149	47	22
May	35,729	-8,650	3,223	3,834	1,532	863	1,060	1,999	385	228	47	126	47	16
June	30,371	619	2,387	3,239	1,681	2,095	1,506	59	378	329	120	97	43	74
August	32,281	3,825	1,109	2,942	1,582	786	650	16	341	176	28	114	45	24
July	31,177	2,204	1,827	2,606	1,613	813	631	85	297	169	76	119	53	35
September	25,213	5,369	4,633	2,667	1,202	936	939	234	429	283	136	102	54	30
October	33,519	1,203	3,039	2,325	1,799	1,060	914	21	243	255	60	159	38	38
November	36,150	2,466	4,654	1,260	1,713	2,140	1,157	190	512	236	-12	219	55	53
December	38,819	6,158	3,870	713	2,248	1,187	815	1,533	431	178	-14	122	33	35
1926:														
January	40,345	6,886	3,170	703	2,188	892	760	332	358	76	154	123	46	51
February	31,435	3,114	3,513	1,113	1,881	741	1,041	643	432	143	89	171	82	94
March	40,316	8,907	4,790	1,342	2,079	864	1,037	832	469	129	227	213	81	55
Apr.	33,416	8,275	4,834	1,781	1,624	1,868	865	402	431	71	93	204	27	23
May	28,705	6,773	2,937	1,848	1,239	1,010	705	200	386	186	241	110	24	47
June	23,795	5,894	2,327	1,655	1,188	1,465	1,070	983	546	269	214	178	20	34
July	34,266	6,768	2,603	2,202	1,552	1,447	800	132	586	295	480	195	34	27
Aug.	26,081	7,327	2,819	2,110	1,888	1,284	796	655	1,159	303	596	199	52	55
Sept.	35,675	8,843	2,900	2,029	1,355	1,922	819	472	1,125	283	430	159	43	27
Oct.	28,110	8,082	2,962	2,423	1,865	2,396		585	889	301	2	210	63	43
Nov.	37,673	9,247	3,194	3,007	1,548			568		194	-18	179		50
Dec.	35,850	4,749			1,846			725			157	184		
	395,667	84,865			20,253			6,529			2,665	2,125		

a—Including gutta percha. b—Including balata. c—Reexports not deducted. d—Believed to include scrap and reclaimed rubber. e—Russian statistics are exports from United Kingdom only to Russia. f—Australian annual statistics including 1924 are exports to Australia from Malaya, Ceylon, Dutch East Indies and United Kingdom; monthly figures and total for 1925 are exports from Malaya, Ceylon, and Java only. -Minus sign, reexports in excess of imports. *All statistics from original official trade returns.*

The Market Place

3.

LINERS — PROCESSED
For
Various Rubber Stocks
The Cleveland Liner & Mfg. Co.
5508 Maurice Ave., Cleveland, O.

MOLDS & CORES—Tire building machines; tire finishing stands; tubing machines; hydraulic presses.
The Akron Standard Mold Co.
Akron, Ohio

RECLAIMED RUBBER—
Uniformity, reliability, cleanliness.
Pequanoc Rubber Co.
Butler, N. J.

MACHINERY—
Heater Presses, Molds and Cores, Tubing Machines.
The Williams Foundry & Mach. Co.
"In Business Since 1888"
Akron, Ohio

MOLDS AND CORES —
Also Non-Skid Engraving Machines. Licensees for Watch-case Heaters and India Cores & Chucks.
The Franz Foundry & Machine Co.
Akron, Ohio

RECLAIMED RUBBER
of Standardized Quality.
NO. 188 FOR TUBES
Philadelphia Rubber Works Co.
New York Akron Philadelphia

MANDRELS--CIRCULAR
and Economy Calender Shells
Prompt Service—Let us quote you.
The Clyde E. Lowe Co.
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MOLDS & CORES—for automobile tires; general machine work.
Kuhlke Machine Co.
Akron, Ohio

RECLAIMED RUBBER—
for all purposes.
Rubber Regenerating Co.
Naugatuck, Conn.

MICA — Water Ground and Water Floated — 160 Mesh —Absolutely Free from Grit. Akron Stocks, also Factory Shipments.
The C. P. Hall Co.
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"NU-GUM" RUBBER
Produced from No. 1 Floating Tubes. Absolutely pure — no oils —no compound added. *Specific Gravity*, .98.
E. L. Bullock & Sons, Inc.
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RECLAIMED RUBBER
Well Known Standards
Monatiquot Brands
Stedman Products Company
South Braintree, Mass.

MICA—160 mesh—water ground —water floated—free from foreign matter.
Stocks carried at Trenton, N. J.—Cleveland, O.—Chicago, Ill.
The Harshaw Fuller & Goodwin Company
Hanna Building, Cleveland, Ohio

PINE TAR — Retort "Sunny South", "Pentarco", "American". Brands for Tires, Tubes, Mechanicals,—Reclaim. *The Best Softener*
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REVIEW DESK

SYNTHETIC RUBBER. By S. P. Schotz, D.Sc., A.R.T.C., F.I.C. 131 pp. and Indices. Van Nostrand Company, New York. $6.00.

Few will doubt the author's contentions that synthetic rubber is destined inevitably to become one of the most important branches of industrial organic chemistry. He believes that by utilizing timber, coal, chalk, peat, shale, oil and tidal and water power, the industries will eventually become independent of the tropical areas for the production of this important commodity which is daily becoming more necessary to modern life.

In this volume Dr. Schotz not only gives a full account of the synthesis of rubber from more simple bodies, but emphasizes in his description, the methods of production which are likely to prove easiest. Bearing in mind the relative importance of various methods of producing synthetic rubber on a commercial scale, he has relegated to a secondary place his considerations of the purely scientific side of the subject.

The book is illustrated with what is undoubtedly a representative selection of modern machinery of British manufature. The author has attempted to give a fair account of the way converging efforts of chemists of all nationalities have achieved results which he regards as stupendous. As is well known, the attempts to synthesise rubber have been synchronous with the sudden rapidity with which the motor car came into universal popularity. Once started, the author points out, these attempts followed close on one another with astonishing results. Due to its complicated nature, the synthesis of rubber must be considered as something much higher than any other modern achievement in the field of organic chemistry.

The book is divided into eight chapters that deal successively with: Isoprene, Butadiene, Dimenthylbutadiene, Polymerisation, Vulcanization, Stabilization, Properties and Constitution of Natural and Synthetic Rubber and the History of Synthetic Rubber. The last chapter is especially interesting to non-technical readers, as well as to rubber chemists who have worked on or intend tackling the problem of rubber synthesis, for it considers briefly the discoveries of emminent predecessors. A reference to a statement made by F. Bayer & Co. in 1911 is well worth repetition here: "Caoutchouc-like substances can be vulcanized according to the same method in use for vulcanizing the natural caoutchouc, substances being obtained equal to and some even better than vulcanized natural caoutchouc."

* * * *

RUBBER AND TYPHOONS IN THE PHILIPPINES. By Charles Hodges. *Outlook* Jan. 26, 1927.

Defining a typhoon as a "big wind" and applying this definition to the politics of the Philippines, the author, inasmuch as he is assistant director of the Division of Oriental Commerce and Politics at New York University, might have brought to his topic some original sidelights on old problems. But he has done nothing of the kind. It is true that his comparison is new, but he has confined his article to a review of the meteorological layout and the present political status of the Islands without presenting any solution of the latter beyond prognosticating that Filipino leaders are prepared to bring the typhoon of Philippine politics about the ears of the American people.

* * * *

DAVIDSON'S TEXTILE BUYERS GUIDE. 42d annual edition. 106 pp. 5½" x 8½". Davidson Publishing Company, 50 Union Sq., New York.

Rubber factories operating tire fabric mills will find this guide of much value in buying supplies, as it lists in alphabetical arrangement raw material, yarns, machinery, supplies, chemicals, dyes and textile services. There are over 1,000 separate headings under which are listed more than 3,000 firms. As far as was possible, generalities in listing have been avoided by the compilers.

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BOOKS Every Rubber Man Should Read

Below are listed a number of books which should be included in the library of every rubber manufacturer and individual desirous of keeping posted on all phases of rubber planting, manufacture and chemistry. These books and *any others published* on factory management, efficiency, production, costs, sales, advertising, engineering, electricity, physics, mathematics or any similar subjects, may be obtained at regular publisher's prices through this department. If you want to know what books are published on any subject, write us; or if you need help of any kind on books, this department will gladly assist you.

BEDFORD, C.W., and WINKELMANN, H.A. Systematic Survey of Rubber Chemistry. 385 p. $7.00

Contents: Introduction by Dr. W. C. Geer; Organic Accelerators of vulcanization by Dr. L. B. Sebrell; Theories of vulcanization by Dr. W. J. Kelley; Author index; Subject index; Patent index.

DE VRIES, O. Estate Rubber, Its preparation, properties and testing. Translated from the Dutch. 649 p. $10.00

Contents: Composition and physical properties of latex; Collection of the latex; Coagulation; Methods of Coagulation; The coagulum; The serum; Preparation of crepe-rubber; Comparison between smoked sheet and crepe; Lower grades; The Brazilian method of preparation; Methods of testing; Physical properties and testing of unvulcanized rubber; Chemical composition of rubber; index.

DUBOSC, A., and LUTTRINGER, A. Rubber: its production chemistry and synthesis in the light of recent research. A practical handbook for the use of rubber cultivators, chemists, economists and others. English edition by Edward W. Lewis. 383 p. $8.50

FACTORY MANAGER. Rubber Goods Manufacture. 496 p. $12.50

Contents: Factory arrangements; Factory machinery; Tire and tubing department; Washing, drying and mixing operations; Vulcanization; Principal raw rubbers; Mineral and other substitutes; Mixings used in common articles; Cloths for rubber trade; Engineering and electrical goods; Matting and tiling; Heels; Hose; Tubing, bags and connectors; Air Pillows and water bottles; Tires; Inner Tubes; Rubber bands, rollers, etc.; Coachbuilders' and jobbers' requisites; Management of a rubber factory; Examples of estimating costs; Appendix; Index.

GEER, WILLIAM C. The Reign of Rubber. 444 p. $3.00

This book was written to fill a real need. There are accurate books on this subject, but they are highly technical. There are popular books on the subject, but they are said to be grossly inaccurate. "The Reign of Rubber" is complete, accurate and non-technical in style.

HEIL, ADOLPH and ESCH, DR. W. The Manufacture of Rubber Goods: A practical handbook for the use of manufacturers, chemists, and others. Third edition. 236 p. $5.00

Contents: Plan and arrangement of a rubber factory; The raw material; Vulcanization; Mixings; Manufacture of soft-rubber articles; Manufacture of ebonite; Reclaiming of rubber waste; Specific gravity.

LUFF, B.D.W. The Chemistry of Rubber. 232 p. $7.50

A book which deals with the chemical principles involved in the cultivation, collection and manufacture of rubber, with consideration also given to the concomitant changes in physical properties accompanying the process of vulcanization.

MacLAREN, W. A. Rubber, Tea and Cacao. With special sections on coffee, spices and tobacco. $7.50

Contents: The raw rubber industry of the British empire; General economic survey, including consolidated statement of supply and consumption; Geographical surveys—Rubber in British Malaya; Ceylon; India; Borneo and New Guinea, British colonies in Africa. Gutta-percha and Jelutong industries; the Balata industry.

MORGAN, SIDNEY. The Preparation of Plantation rubber. With a preface and a chapter on vulcanization by H. P. Stevens. 331 p. $6.00

Chapters on planting; Field maintenance; Tapping; Collecting; Factory operations; Machinery and buildings; Finished rubber and vulcanization.

MORRELL, R.S., and DE WAELE, A. Rubber, Resins, Paints and Varnishes. 248 p. $4.00

Contents: The rubber hydrocarbons.

PEARSON, HENRY C. Crude Rubber and Compounding Ingredients. A textbook of rubber manufacture. Third edition. 422 p. $10.00

Contents: Chemical and physical properties of rubber; with chapters on substitutes, accelerators, reclaimed rubber, gutta percha, compounding materials, etc.

PEARSON, HENRY C. Pneumatic Tires. An encyclopaedia of manufacture, repair, rebuilding, processes, machines, etc. 1323 p. $12.00

Complete history of development of tires, methods of manufacture, machinery used, tire accessories, tools, repair methods.

PEARSON, HENRY C. Rubber Machinery. 419 p. $6.00

Contents: The washing and drying of crude rubber; Dry sifting and batching of compound ingredients; Mixing or compounding of rubber; Preparing fabrics for calendering and spreading; Calenders; Clutches; drives and safety stops for mills and calenders; Reclaiming; Conveyors; Temperature recording and controlling devices; Rubber laboratory equipment.

PETCH, THOMAS. Diseases and Pests of the Rubber Tree. 278 p. $5.00

With extended bibliography of papers on diseases and pests of Hevea and a full treatment of subject.

PINKNEY, W.G., and WATKINS, P. The Rubber Manufacturers' Handbook. Tables and Formulae. 89 p. $3.50

The object of this book is to place in the hands of the rubber manufacturer a series of tables and formulae in a concise form arranged from datum which the compilers have from time to time found useful and necessary for their own reference.

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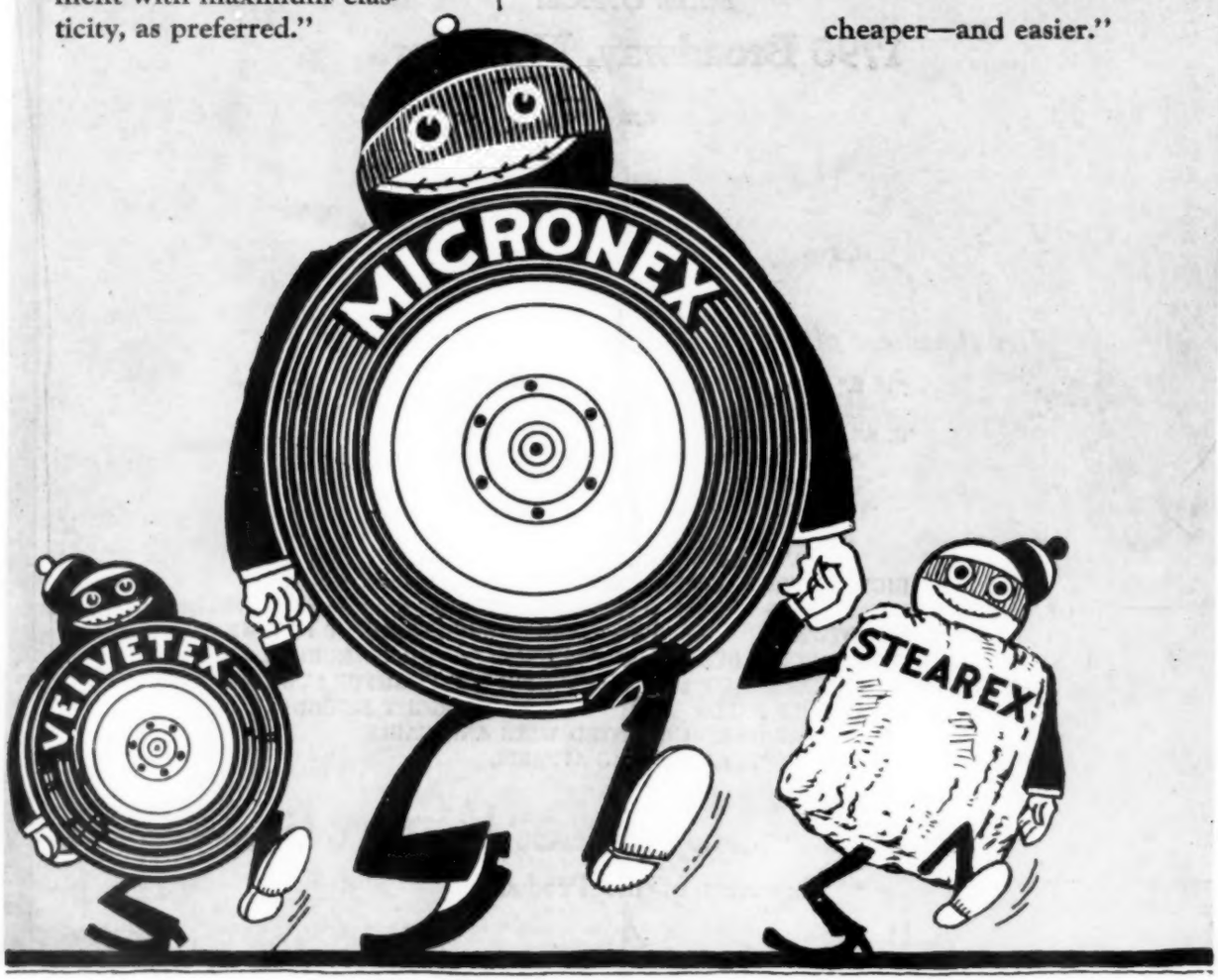

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